STERILITY IN WOMEN

ARTHUR W. EDIS

STERILITY IN WOMEN

STERILITY IN WOMEN

INCLUDING

ITS CAUSATION & TREATMENT

BY

ARTHUR W. EDIS, M.D. Lond., F.R.C.P.

SENIOR PHYSICIAN TO THE CHELSEA HOSPITAL FOR WOMEN
LATE OBSTETRIC PHYSICIAN TO THE MIDDLESEX HOSPITAL
FELLOW (LATE PRESIDENT) OF THE BRITISH GYNECOLOGICAL SOCIETY
CORRESPONDING FELLOW OF THE GYNECOLOGICAL SOCIETY OF BOSTON, U.S.
HONORARY FELLOW OF AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS
AUTHOR OF "A MANUAL ON THE DISEASES OF WOMEN," ETC., ETC.

WITH 33 ILLUSTRATIONS

LONDON
H. K. LEWIS, 136, GOWER STREET, W.C.
1890

LONDON :

PRINTED BY H. K. LEWIS,

136, GOWER STREET, W.C.

PREFACE.

In my "Manual of Diseases of Women," first published in 1881, I attempted to give a short account of Sterility. As the second edition has now been out of print some years, I have reproduced this portion, with considerable additions, comprising the treatment of most of the important conditions generally met with preventing conception.

A series of cases, illustrating the method of treatment, both in primary and acquired Sterility, has been appended.

A. W. E.

22, Wimpole Street, W.,
October, 1890.

CONTENTS.

STERILITY IN WOMEN.

STERILITY, barrenness, or infecundity, are the terms applied by different authors to designate the condition of incapacity for conception, or where the ovum does not advance to maturity. The subject itself is one of great importance, and has occupied the attention of writers from the earliest ages down to the present time. Not only has it been held to be a reproach to women, but there is no doubt that sterility is the cause of much unhappiness in married life. Apart from this, however, the perpetuation of names and families, the descent of property, and even the permanence of dynasties and governments, may depend upon the fact of sterility being curable or otherwise.

The question of a woman's being probably sterile is decided within the first three years of married life. Only 7 per cent. of the fertile bear first children after three years of marriage, or about one in thirteen.

It has been computed that in Great Britain alone there are over 500,000 married females sterile.

A certain number of women in every community will be found to be so. Among 495 marriages in the British peerage, 81 were unproductive, or 1 in $6\frac{1}{9}$ were without any family; that is about 17 per cent. Of 675 marriages

among the agricultural and seafaring, 65 were sterile, or about 1 in 10.

Sterility does not necessarily prove that the sexual organs or functions in either the male or the female must be in an abnormal condition. There may be a physiological incompatibility, a relative not an actual sterility, as proved by husband and wife living together for many years without having any family, and without apparently any alteration in the conditions, pregnancy ensues. Again, a wife remains sterile with one husband who has had children by his former wife, and yet conceives at once on marrying again after the death of her first husband.

Probably many of these anomalies and apparent inconsistencies are often merely the result of latent disease and of morbid local conditions, and, as such, susceptible of being explained and remedied.

The fact should not be forgotten that although a woman may be actually sterile, she may be potentially fertile, conception not taking place from the absence of healthy living spermatozoa on the part of the husband to impregnate the ovum. It has been proved conclusively that men in robust health, where impotence is out of the question, the sexual act being perfectly accomplished, may have no living spermatozoa in their spermatic fluid. This may be due to some congenital defect, or as a result of some antecedent inflammatory condition of the testes, notably from orchitis, the sequel of gonorrhœa. That syphilis in the male does not necessarily cause sterility is proved by the frequent occurrence of congenital syphilis in the infant, but the case is different with gonorrhœa. The active stage may have subsided, but there may still remain a chronic or latent gonorrhœa sufficient to cause a persist-

ence of morbid secretion in some part of the urethra or vasa deferentia, which being mixed with the semen at the time of ejaculation, acts as a direct poison on the spermatozoa.

It has been demonstrated that of eighty-three cases of bilateral epididymitis, only eight had afterwards spermatozoa in the semen, due probably to obliteration of the vasa deferentia or epididymis. About 90 per cent. of sterile women are married to husbands who have suffered from gonorrhœa either previous to, or during married life. The inference, therefore, is clear that before resorting to any active treatment of the female for sterility, we should endeavour to ascertain whether the secretion from the male is healthy in character and contains living and active spermatozoa.

That connection should be pleasurable is a sign of the reproductive organs being healthy, but sensual gratification is not necessary to conception, nor does its absence preclude conception. Occasionally we find instances where too intense passion and too frequent intercourse seem to be the only barriers to fertility. The opposite condition, frigidity, although in some cases it may point to absence or imperfect development of the ovaries or other portion of the sexual apparatus, is not necessarily associated with sterility. Numbers of wives become mothers who have even a positive aversion to the sexual act, and where not the remotest sensation of pleasure is experienced at those times, there being a complete absence of sexual feeling.

Diagnosis.—Whenever we are consulted in a case of sterility, the patient generally has an idea that it is due to some defective development or mechanical impediment, and therefore comes prepared to submit to a careful in-

vestigation. This should always be made, both for the patient's satisfaction as well as for our own credit.

Having first listened attentively to any statements or opinions that may be offered, we should make particular inquiries as to the catamenial functions; time of first appearance, regularity or otherwise, duration of flow, interval between the periods, presence or absence of pain, character of pain if present, as to when it commences, how long it lasts, what seems to relieve it, whether it recurs at each period or only occasionally; and any other questions that the nature of the case may suggest or our inquiries may bring forth.

Ascertain distinctly whether the patient is subject to vaginal discharge, its nature and amount, when most profuse, and whether habitual or only occasional.

Physical Examination.—Observe carefully whether there seems to be any undue sensitiveness of the vulval outlet on attempting to explore the vagina with the finger, as met with in vaginismus.

Note the character of the hymen, whether imperforate, cribriform, fleshy, cartilaginous, or merely represented by the carunculæ myrtiformes. Ascertain the condition of the vagina—whether normal in character, constricted, double, long or short, small or capacious.

As to the uterus, satisfy yourself as to its presence, its position, whether ante- or retro-verted or flexed, prolapsed, or drawn up out of the pelvis; whether it be enlarged as by fibroid, congested or inflamed, indurated, softened, or atrophied, whether it is mobile or fixed; note the condition of the cervix, whether infantile or conical, hypertrophied or elongated, granular or ulcerated. Is the external os uteri pin-hole? will the uterine sound pass

readily, or is there stricture of the cervical canal or spasm of the internal os, or a small polypus blocking up the canal? Ascertain, if possible by conjoined manipulation, whether the ovaries can be felt, and whether they appear to be normal in size, character, and position. Can any thickening or deposit of any kind be detected in the pelvis likely to interfere with the function of the ovaries or Fallopian tubes? Is there any undue secretion in the vagina likely to interfere with the vitality of the semen? Is the cervix uteri pouring forth any viscid glairy mucus that would be liable to prevent the passing of the semen up the canal? All these several points should be noticed. We shall frequently find one or more of the conditions indicated present, even if they may not prove to be the cause of the sterility.

Dr. Marion Sims, who devoted much attention to the subject, and published some most interesting clinical notes on uterine surgery with special reference to the management of the sterile condition, laid down the following as postulates embracing the general principles or laws most favourable, indeed essential, to fecundation :—

1. Conception occurs only during menstrual life.

2. Menstruation should be such as to show a healthy state of the uterine cavity.

3. The os and cervix uteri should be sufficiently open to permit the free exit of the menstrual flow, and also to permit the ingress of the spermatozoa.

4. The cervix should be of proper form, shape, size, and density.

5. The uterus should be in a normal position, *i.e.*, neither ante-verted nor retroverted to any great degree.

6. The vagina should be capable of receiving and of retaining the spermatic fluid.

7. Semen, with living spermatozoa, should be deposited in the vagina at the proper time.

8. The secretions of the cervix and vagina should not poison or kill the spermatozoa.

Although in the majority of cases in which we are consulted, where no children are born within the first year or two of married life, the female generative organs are presumably in a normal condition, there being no impediment to coition, no unusual discomfort, nor severe local symptoms complained of, it will be well to enumerate, for the guidance of the practitioner, the various conditions that have from time to time been met with as offering, so to speak, mechanical obstruction to the admission of semen into the uterus.

Imperforate Hymen.—In some cases, in place of the annular fleshy ring surrounding the entrance to the vagina, we find a dense, firm fleshy membrane, which prevents alike the exit of the menstrual fluid or the entrance of the male organ. If advice has not already been sought for the amenorrhœa, the probabilities are that it will have been for the dyspareunia or inability to effect intercourse.

In other cases the hymen is cribriform, or perforated by small apertures which allow of the exit of the menstrual secretion and even occasionally of the entrance of semen, but prevents perfect intercourse being effected.

Patients who marry late in life often present a dense, almost cartilaginous condition of the hymen, which, though it interferes with coitus, does not necessarily prevent impregnation taking place, instances being not infrequent where operative procedures have to be resorted to in order to allow of parturition being accomplished. A crucial incision will overcome the difficulty.

Atresia vaginæ, literally imperforate vagina, from occlusion or obliteration of the canal, may be either congenital or acquired by some accidental injury or disease. It may be partial or complete. Operative interference is generally requisite, but should only be resorted to after careful consideration.

Vaginismus, or spasmodic contraction of the sphincter vaginæ from extreme hyperæsthesia of the vulval outlet, is not only a cause of dyspareunia, but also frequently entails sterility from the impossibility of intercourse being tolerated. In some cases the vagina itself is very irritable, or may be too short or shallow, or there may be gaping of the vulva, or the vagina may have become stretched into the form of a pouch extending up behind and above the os uteri, all of which conditions interfere with the normal retention of the spermatic fluid, or with its passage into the cervical canal, and are thus indirect causes of sterility.

Absence or Imperfect Development of Uterus.—Complete absence of the uterus is a condition very rarely met with, though it is not infrequent to find a mere rudimentary development. In the event of our not being able to detect the presence of a uterus by conjoined manipulation, one finger being passed per vaginam and the other hand pressed firmly down on the abdomen just above the pubes, it will be well to examine per rectum in order to determine whether there is any thickening of tissue corresponding to the ordinary position of the uterus. Should we not succeed in this, it will be well to pass a sound per urethram into the bladder, and if the finger passed per rectum fails to detect the presence of any thickening intervening between the digit and the sound when this

latter is moved from side to side, we may fairly conclude that the uterus is absent or so rudimentary as hardly to be worthy the name of a uterus. Sterility of course is here absolute.

Enlargement of the uterus from chronic hypertrophy, called by some areolar hyperplasia, by others chronic inflammation and chronic infarctus, is a frequent cause of acquired sterility. It is a condition very frequently met with among *puellæ publicæ*, and may in some part explain the noted infecundity of this class. It is reasonable, therefore, to infer that where this condition be present and the patient be sterile the two are associated as cause and effect. Congestion of the neighbouring vessels, as well as those of the uterus, proves alike unfavourable to healthy ovulation, and to the normal development of the ovum within the uterus.

Stricture of the cervical canal, more especially of the os internum, is by many regarded as a frequent cause of sterility, but where there is no acute angle of flexion, and the menstrual fluid is discharged without difficulty, it is a question whether the mere fact of not being able to pass the uterine sound without producing spasm at the internal os uteri, is a sufficient warrant for dividing the cervix in the heroic way that was at one time recommended, more especially when the fact remains that the sterility often persists after the constriction has been entirely removed.

Conical Cervix.—A conical shape of the vaginal portion of the cervix, with a so-called pin-hole os uteri, is a very frequent cause of sterility, in fact, may be regarded as being, with the exception of endometritis, the most common of all the causes, and fortunately one of the most remediable, in that it can be rectified by simply incising

the os uteri bilaterally and thus enlarging the aperture, care being taken to prevent the margins of the incision healing again by first intention.

Hypertrophic elongation of the cervix uteri, where the os projects almost to the vulva, and in some cases even beyond this, giving rise to the supposition that the uterus itself is prolapsed, and in some instances having been mistaken for the penis, is almost sure to produce sterility. Amputation of the cervix by means of the écraseur, galvano-cautery, or by the knife, is the only plan to afford relief.

Polypus uteri, whether so small as merely to offer an obstacle to the ingress of the spermatic fluid, without interfering with the egress of the menstrual fluid, or so large as to cause marked distress from menorrhagia, &c., may produce sterility by interfering with impregnation or by causing expulsion of the ovum at a very early stage should impregnation occur.

Fibroid tumours of the uterus not infrequently cause sterility, more especially when they are situated close beneath the uterine mucous membrane, and produce a closure or narrowing of the upper portion of the cervical canal.

It is not, however, merely by their mechanical hindrance to impregnation that they produce sterility. Their presence in the uterus keeps up a constant congestion of the mucous membrane, as evidenced by the frequent attacks of menorrhagia, which serves to wash away the ovum, so to speak, before it is firmly attached, before in fact conception has taken place.

Membranous dysmenorrhœa, where the lining mucous membrane of the uterine cavity becomes exfoliated *en masse*, instead of as usually in small disintegrated shreds,

is generally attended by such an amount of spasmodic uterine action during the expulsion of the membrane, as to effectually prevent the fixation of the ovum. Sterility of course results. It may be well to mention that the discomfort produced at these times is often so great as to lead to the supposition that an early miscarriage has taken place. A microscopic examination of the product expelled will alone enable us to recognize the nature of the case.

Uterine displacements are accountable for numerous cases of sterility. If partial prolapsus be present, it does not necessarily prevent impregnation, although the original congested condition of the uterus, which too often produces a tendency to prolapse, may itself be the chief cause. In any case, the insertion of a Hodge's pessary will prevent the uterus descending, and also favour the return to a normal condition of the organ.

Retroversion of the uterus is a frequently overlooked cause of sterility. When reclining on the back, the fundus being directed to the cavity of the sacrum, the cervix naturally is tilted upwards under the pubes. When coition occurs, the semen gravitates to the lower or posterior fornix of the vagina, where under ordinary circumstances it remains until the patient assumes the upright position, when it becomes expelled.

Retroflexion of the Uterus.—The axis of the cervix being fairly normal, but that of the fundus being more or less at a right angle to this, stricture at the angle of flexion occurs, producing alike painful menstruation and sterility as well. It must be remembered that where this condition occurs, there is a great tendency to increased congestion of the organ, and consequently to an unhealthy state of

the lining membrane. There are some who assert that by far the most common conditions associated with sterility are congenital narrowing of the os externum and retroflexion of the uterus; and that in any given case of a woman who remains sterile five years after marriage and suffers from dysmenorrhœa, it may be predicted with almost certainty that one or other or both of these conditions exist.

Anteversion of the uterus cannot be regarded as a very frequent cause of sterility, for however much the uterus may be tilted forwards during the erect position of the patient, the tendency is for the fundus uteri to fall back again when the patient assumes the recumbent position.

If the uterus be considerably anteverted in a patient where sterility occurs, it will generally be found that some abnormal condition of the uterus, as endometritis, fibroid tumour, congestion, or other primary producing cause is present, and thus tending to perpetuate the misplacement.

It is by pressure of the os uteri against the posterior vaginal wall, the cervix being forced against the rectum and the fundus against the neck of the bladder, that irritation of this viscus occurs, and dysmenorrhœa and sterility not infrequently result.

Anteflexion of the uterus, being probably one of the most frequent forms of uterine displacement, is very often associated with dysmenorrhœa and sterility.

The body of the uterus, in place of being continuous with that of the cervix, is bent at a more or less acute angle, so that the fundus can be felt in front of the cervix, often so low as to be on a level with the os uteri. A moderate degree of flexion may exist without any very

manifest symptoms, but if the flexion be at all acute, we shall generally have more or less irritability of the bladder, pain at the periods, possibly pain on sexual intercourse, and even in walking or standing, together with dragging sensations in the lower abdomen, and other nervous and distressing feelings. In cases like these sterility almost invariably results, the canal of the uterus being bent at such an angle as to effectually close it at the point of flexion, and thus prevent the entrance of the spermatozoa.

Ovarian.—There are several conditions of the ovary that may account for sterility. Absence of the ovaries is generally associated with imperfect development of the uterus, and as a consequence amenorrhœa. The ovaries may be present, but so imperfectly nourished from the general health being so debilitated, that the maturation of ova is arrested for the time being, and only when the general health improves will perfect ovulation take place. This condition is by no means infrequent.

The ovum itself may degenerate in the Graafian sac and never be expelled, or its extrusion may be so interfered with by the presence of adhesions or thickening of the serous coat or fibrous investment of the ovary, that it never reaches the Fallopian tubes at all.

Cystic disease of the ovary may prevent the healthy development of ovules, so also chronic ovaritis. That sterility is not more frequent from this cause may probably be explained by the fact of there being two ovaries, and both of these are not necessarily the subject of inflammatory or other diseased action at the same time. They are only simultaneously affected and structurally destroyed in very severe and general diseases.

The ovary again may be bound down by adhesion, or so

covered with false membrane that the ovum cannot penetrate the capsule and find its way into the tube.

Fallopian Tubes.—Absence of the fimbriæ, or of the tubes themselves ; twisting, occlusion by means of stricture or false membrane, or from the pressure of some fibroid tumour of the uterus just at the junction of the tubes with this organ ; adhesions, from pelvi-peritonitis, of the tubes to neighbouring organs preventing the ovary being grasped by the fimbriated extremities, may interfere with the passage of the ovule into the uterine cavity, and thus produce sterility.

Salpingitis, or inflammation of the tubes, may lead to their obliteration by adhesion, or to their becoming obstructed by thick mucus or a collection of pus.

These causes of sterility, even if diagnosed, are mostly irremediable. Suggestions as to catheterising the Fallopian tubes were made some years since, but no practical end has been attained.

Although temporary sterility may result, it does not necessarily follow that it will be permanent. Adhesions may break down or become absorbed ; deposit, as in pelvic cellulitis, may clear off, or such modifications in the relation of the parts ensue, as no longer to offer a bar to fertility.

Syphilis, although it may not prevent impregnation taking place, yet unquestionably must be regarded as a not infrequent cause of sterility, in that patients suffering from this disease seldom produce a living full-time fœtus until means have been adopted to cure the constitutional disorder by anti-syphilitic remedies. The normal development of the decidua is interfered with. It is liable to undergo fatty degeneration and to break down, the ovum

being expelled at such an early date that the fact even of pregnancy having commenced is unrecognised, and the expulsion of the ovum is merely regarded as profuse menstruation.

In other cases the development of the ovum goes on for the first few months, depending upon the intensity of the poison with which the system is infected, and then becomes blighted, and ultimately expelled. Frequent abortions are generally dependent upon some syphilitic taint. Where this is suspected or known to be the case, it may be requisite to submit both husband and wife to a course of constitutional treatment, precautions being taken to prevent impregnation until such time as the system is no longer saturated with the disease.

Gonorrhœa in the female is a far more frequent cause of sterility than generally believed. It is not always that we shall be able to trace the history of an acute attack, nor is it even necessary that the husband should contract the disease during married life. It has been clearly proved by Dr. Noeggerath that when once the disorder has been contracted by the male, even though all marked symptoms may have completely disappeared, with the exception of a slight gleet, it is still possible for him to communicate many years after a form of so-called latent gonorrhœa to the female. Increased vaginal discharge with menorrhagia are usually the earliest symptoms, followed by cervical endometritis, salpingitis, ovaritis, pelvi-peritonitis, often apparently suddenly developed without any well-ascertained assignable cause, or as a result of some trivial operation that does not generally cause the least anxiety.

When once the sexual apparatus has become infected, there is a great tendency to relapses, often sudden and in-

explicable. Whether from adhesive changes taking place around the ovaries and tubes from these recurrent attacks of perimetritis interfering with ovulation, whether from some chronic ovaritis or from the secretions formed in the genital passages interfering with the vitality of the ovum and preventing its proper development, the fact remains that a large number of these cases prove sterile or only have one child.

The treatment needs to be conducted with great care, the mere introduction of the sound, or of a laminaria or sponge tent to dilate the cervix, the insertion of a stem, the application of a few leeches, or of some caustic, or the most trivial operation, may suffice to bring on an acute attack of perimetritis.

With the exception of sterility produced by congenital malformations, that arising from this condition resists treatment most obstinately.

Vitality of the semen.—This may be interfered with or destroyed by undue acidity of the vaginal mucus, excessive alkalinity, or unusual viscidity of the cervical mucus, such as is so frequently found in cases of cervical endometritis. Where the patient is subject to menorrhagia or profuse leucorrhœa, this may interfere with impregnation. Epithelioma uteri, even in an advanced stage, where the discharge is profuse and acrid, does not necessarily prevent impregnation taking place. Numerous instances have occurred where utero-gestation was present, the cervix uteri being in an advanced state of disintegration from malignant disease.

Prevention of fixation of ovum may result from an unhealthy condition of the lining mucous membrane of the uterus, the requisite changes for the formation of the

decidua not taking place, or, from some strumous or syphilitic cachexia being present, fatty degeneration of the decidua occurs at an early stage and the ovum becomes blighted.

Menorrhagia from ovarian irritation may also keep up such a condition of the mucous membrane of the uterus as unfits it to form healthy decidua, or, as Dr. Barnes remarks, "if impregnation have occurred, the ensuing menstrual nisus, too powerful to be controlled by the pregnancy, may be attended by a profuse hæmorrhage, which brings about extravasation into the decidua, or such other disturbances in the uterus as are incompatible with the maintenance of the ovum."

The ovum itself, either as the result of constitutional syphilis or other morbid taint, may have so little inherent vitality as to become blighted at an early stage.

TREATMENT.

As the removal of the cause is the only means of overcoming the difficulty, our first effort must be to ascertain what cause or combination of causes in any given case seems to account for the fact of sterility, and to remove these if possible.

Whatever condition be detected at all likely to prevent conception, it will be well to obviate or remove this at once, and not to assume that it is inadequate to account for the infertility.

A large number of cases of sterility are curable, if only we give sufficient time and attention to the individual cases, firstly, in endeavouring to ascertain the cause, and then in persevering with the plan of treatment deemed requisite.

Failure often results from a too hurried or not sufficiently careful exploration of all the various circumstances that throw light upon the subject. We remove some manifest cause of obstruction to impregnation, and because conception does not speedily occur, we consider the case is hopeless or beyond the aid of treatment. It may be that there are a series of causes in any one case, all of which must be removed before success attends our efforts. Having overcome one difficulty and given the patient a fair and reasonable opportunity of profiting by the advantage thus gained, should pregnancy not ensue we must then seek to find out and remove if possible any other condition likely to cause an impediment to conception.

In some instances it may be necessary to change the whole mode of life, or to insist upon a regular course of treatment extending over many months. If the patient be anæmic or in feeble health, a course of ferruginous tonics, with cod-liver oil, out-door exercise systematically persevered with, a residence at the seaside during the summer months, and other expedients, must be resorted to, with a view to improving the general health, and thus indirectly favouring healthy ovulation.

Should the patient be plethoric, unnaturally stout for her years, we must endeavour to diminish her bulk. For this purpose it may be necessary to put her into training. We must diminish her diet, more especially as regards sugar, milk, butter, bread, potatoes, and beer. She must take steady, regular exercise, the action of the skin being assisted if requisite by the aid of Turkish baths, and that of the bowels by means of saline aperients.

The waters of Ems, Kissingen, and Marienbad have the credit of reducing obesity, but only when taken so as to purge.

In addition to this, any local congestion or other disorder of the uterus or ovaries must be attended to.

In some patients the mere fact of leaving off stimulants, more especially if spirits have been indulged in, will relieve any local congestion and enable the ovum to become fixed and the requisite changes in the mucous membrane to take place.

The most favourable time for fruitful congress seems to be immediately before and just after the menstrual period. During menstruation, and for a few days before and after, the sexual apparatus is in a state of active congestion, and it is at these times that impregnation is most likely to occur. Ovulation and menstruation are so intimately associated the one with the other, even if the one be not dependent upon the other, that we can readily understand why impregnation should be more apt to take place at these times, though instances are not unknown where conception has occurred from a single coitus at the mid period, a clear fortnight from either menstrual epoch.

A visit to some of the mineral water spas, either in this country, as at Woodhall Spas, Bath, Buxton, and Tunbridge Wells, or on the Continent, as at Ems, Aix-les-Bains, Schwalbach, Kreuznach, and numerous others, is by some regarded as very advantageous in chronic uterine disorders leading to sterility.

Change of air and scene, the mere fact of leading a healthier life, rising early and taking exercise, regular bathing, the advantage of daily medical supervision, are alone calculated to prove serviceable to those whose frames are weakened by long-standing uterine mischief and their will enfeebled by deteriorated health. Beyond this it is difficult to imagine that, except in a very small

percentage of cases, mineral waters are sufficient to break down the barrier to maternity.

The ascending douche, the alternate hot and cold douches, the wet packing, the prolonged soaking, and various other ingenious hydropathic devices, doubtless prove of service in cases of leucorrhœa and other simple disorders of the female organs, but that hydropathy can obviate the defects produced by a conical cervix, uterine displacements, and all the other numerous causes of sterility that have been mentioned, is not only unlikely but unreasonable. Before therefore suggesting a visit to any of these mineral spas, the practitioner should endeavour to remove any and every condition that is likely to interfere with fertility, and not trust too implicitly to what after all can but be regarded as a means of improving the general health.

In a large number of cases, where sterility exists, it will be found to be due to some displacement of the uterus associated with some unhealthy condition of the cervical canal, or with a conical state of the cervix, and a so-called pin-hole os uteri. These will be therefore given in detail.

Vaginismus is met with occasionally, but by no means frequently, still it will be well to consider this.

It would answer no practical purpose to enter upon the question of malformations of the uterus. They are comparatively rare in their occurrence, and it is hardly probable that the practitioner would attempt to deal with them.

The present work is not intended to be a comprehensive treatise upon the whole question of sterility in women, but merely a description of the more frequent conditions, and the method of dealing with them.

Before attempting heroic treatment in the way of operation, it will always be advisable to begin by resort-

ing to the simplest measures and persevering patiently with these, so long as they offer any prospect of success.

VAGINISMUS.

Sims defines this as excessive hyperæsthesia of the hymen and vulvar outlet, associated with such involuntary spasmodic contraction of the sphincter vaginæ as to prevent coition.

It is by no means infrequent, though from false delicacy on the part of the patient or practitioner, its presence is not always revealed. It may be idiopathic, due to excessive nervous irritability affecting the whole system, as witnessed in hysterical patients, or it may be symptomatic of some apparently insignificant local disorder. Under the head of Dyspareunia will be considered numerous conditions producing spasm of the vagina or pain on coitus. We shall here only enter upon the subject of vaginismus proper.

Symptoms.—Exquisite sensitiveness of the vulval outlet, so marked as to throw the patient into a state of extreme nervous trepidation and apprehension on the least attempt at digital examination or sexual intercourse. If either of these be persevered in, violent spasm and contraction of the sphincter vaginæ muscles ensues, attended by agonising pain. In well-marked cases, the slightest touch, such as occurs from friction in walking, or on washing the parts, is sufficient to cause painful spasm.

Prognosis.—Dr. Sims tells us, "from personal experience I can confidently assert that I know of no disease capable of producing so much unhappiness to both parties to the

marriage contract, and I am happy to state that I know of no serious trouble that can be so easily, so safely, and so certainly cured." Dr. Thomas also states that he has met with no case in which he has not been able to give relief.

Course and Duration.—The affection, when severe and of long standing, unless relieved, may remain indefinitely, becoming a permanent source of discomfort and misery. The milder forms, such as are not infrequently met with in the newly married, may disappear in a short time, either naturally or by the aid of simple treatment. Still, as Barnes so graphically describes it, "the distress, so long as the patient continues exposed to attempts at intercourse, is generally aggravated by time ; health breaks down under the nervous exhaustion produced by repeated suffering, and what may be called the disappointment of nature under an unfulfilled function. In some cases the irritability of the nervous centres becomes so great, the sensitiveness of the peripheral nerves at the vulva so acute, and reflex action thereby so intensified, that the attempt at intercourse will induce convulsion, or be followed by syncope. Exaggerated emotions, the conflict between affection and the dread of pain, may induce similar results."

Treatment.—Physiological rest for a time, until the nervous system has regained its power, and the irritation of the parts has been relieved, is absolutely essential. Repeated or awkward attempts at coitus keep up such a state of nervous distress, and produce so much local suffering, that unless strict abstinence be enjoined, treatment is of no avail. The affection as met with in the newly married is often very difficult to deal with for this reason. Rest for a time, a warm hip-bath at bedtime, bathing the

parts with a lotion of borax, or using vaginal injections, regulation of the bowels by saline aperients, and the administration of nervine tonics, iron, quinine, strychnia, &c., will generally succeed in relieving cases of minor severity of recent occurrence.

A careful examination should always be made, so that any fissures, abrasions, or ulcerations may be detected and properly treated. The application of the nitrate of silver or of strong carbolic acid will occasionally be found requisite. Before any renewed attempts at intercourse are submitted to, the precaution of anointing the vulval aperture with cold cream or olive oil will serve to lubricate the parts, prevent unnecessary irritation, and facilitate intromission. After the latter has taken place, the irritation produced by disappointment of an unfulfilled function is removed, and the difficulty, once so distressing, soon disappears.

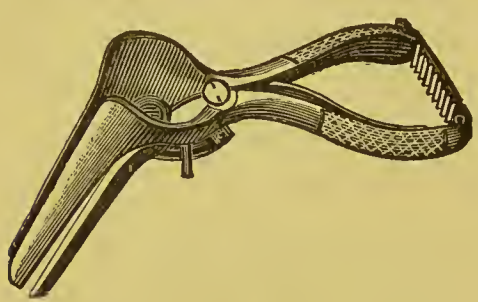

FIG. 1.—LANE'S THREE-BLADED RECTUM SPECULUM.

In the severe forms of the affection, where local irritation has been subdued, any fissures or excoriations removed, but still the spasmodic contraction on any attempt at sexual intercourse continues, it will be necessary to resort to other expedients.

Dilatation of the vagina may first be tried. Anæsthesia having been produced, forcible distension is effected by means of a trivalve speculum (fig. 1), gradually expanded, or of tubular specula, gradually increasing the size, or by introducing the two index fingers of either

hand, or the thumbs if preferred, back to back, and then pulling them in opposite directions until the ostium vaginæ has been thoroughly distended.

Sims's vaginal dilator (fig. 2), Barnes's vaginal rest, or

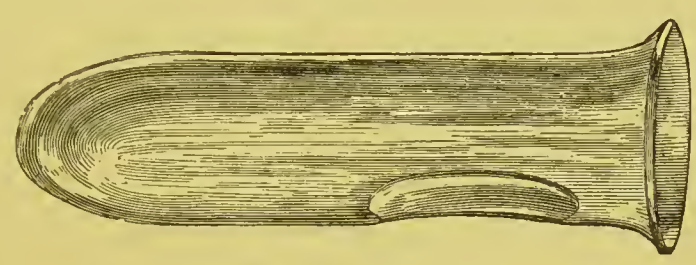

FIG. 2.—SIMS'S GLASS VAGINAL DILATOR.

an elastic dilator (fig. 3), will have to be worn for a few hours at a time, daily or alternate days, depending upon how it is tolerated. Its presence will tend to numb the nervous sensibility, and so overcome or wear out any tendency to spasm, to keep the sphincter vaginæ on the

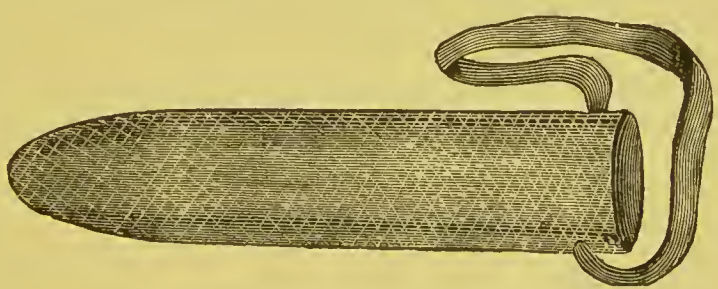

FIG. 3.—ELASTIC GUM VAGINAL DILATOR.

stretch and distend the vagina, and produce a tolerance of foreign bodies.

Others recommend enlarging the vulval outlet by making two or three incisions through the skin on either side of the fourchette. Subcutaneous division of some of the fibres of the sphincter vaginæ is another method,

with a similar object. A tenotomy knife is passed under the mucous membrane at the posterior edge of the vulva, near the perineum. When it has penetrated flatwise about an inch, the edge is turned outwards, and the tissues cut towards, but not through, the skin.

If the hymen be found to be very dense, and the fourchette thick and unyielding, the aperture may be enlarged by slight incisions on either side of the mesial line, or by incising the perineal body exactly as it is torn in parturition. The vaginal rest must then be inserted, and kept in for as long at a time as the patient can tolerate it.

It may be kept securely in place by adjusting a T bandage.

In addition to these operative measures, vaginal injections, morning and evening, of warm water, with the addition of some soothing lotion, such as plumbi acetatis (℥j.) and tinctura opii (℥ss.), ad aquam Oj. ; glycerate of borax (℥ij. ad Oj. aquam) ; glycerate of carbolic acid (℥ss. ad Oj. aquam), or other similar agents, may be employed.

Pessaries of morphia, morphia and atropine, conium, cocaine gr. ij.-iv., and other alkaloids, passed into the rectum or vagina at bedtime, are also of service.

Ointments of atropine (gr. ij.), morphia (gr. ij.-iv.), hydrocyanic acid (℥j.-℥ij.), and vaseline or lard (℥j.), may prove useful.

Should these means fail, or an over-sensitive condition of the carunculæ myrtiformes be detected, the pain even on the slightest touch being so exquisite that the patient shrieks out, it will be necessary to excise by means of curved scissors the hypersensitive portions. Anæsthesia should first be produced, the patient being placed in the

ordinary lithotomy position, and the parts held separate by an assistant. By the aid of vulsellum forceps or a tenaculum, one of the projecting nodules is seized and removed with curved scissors, a complete ring being excised, including all the tender points. Pressure and cold are generally sufficient to restrain the hæmorrhage; but if this be severe, the cut surface may be lightly touched with the actual cautery or the liquor ferri perchlor. Strips of lint soaked in carbolised oil are then inserted in the vagina, and a pad of cotton-wool applied, a T bandage being adjusted to obviate any further risk of hæmorrhage. Sims's glass vaginal dilator, or Barnes's vaginal rest, may be worn for a few hours each day during the process of healing, absolute rest being enjoined until the surface is thoroughly healed, which generally takes three or four weeks. Section of the pudic nerve, as originally recommended by Burns, is both a difficult and dangerous operation, and should not as a rule be attempted.

Sterility is an almost invariable result of vaginismus. Should pregnancy, however, fortunately occur, the act of parturition would probably produce a radical cure. Sims proposed inducing anæsthesia, in the hope that complete connection, accomplished under these circumstances, might prove successful in causing impregnation.

DYSPAREUNIA.

Dyspareunia, from δυσπάρευνος, signifying difficult or painful performance of the sexual functions, is so intimately associated with the question of sterility that it will be well to mention the subject here.

Although only a symptom, depending as it does upon many and various conditions of the genito-urinary organs, it is of far more frequent occurrence than is generally imagined. Owing to the mutual diffidence of the practitioner as well as the patient in entering upon such a delicate subject, it is too often passed over without comment, and yet, if the truth were known, there are numbers of cases where this condition is the cause of much physical suffering, mental distress, and conjugal infelicity. In many instances it is a mere temporary condition, and may disappear without treatment, or by the employment of very simple remedies.

In other cases it will continue as long as the condition producing it remains unaltered, even to twenty-five or thirty years ; in fact, becoming permanent.

Causes.—These, as will be seen, are very numerous.

Atresia of the vulva or vagina. Imperforate hymen.

Hyperæsthesia of the vulva or carunculæ myrtiformes, producing vaginismus.

Excoriations and fissures of the vulva.

Unusual depth of the pubic arch.

Vascular growth of the meatus urinarius.

Follicular inflammation of the vulva.

Vaginitis, whether simple or specific, or from injuries during labour.

Inflammation of Bartholini's glands.

Too short a vagina.

Elongation of the cervix ; endometritis.

Congestion and inflammation of the uterus.

Prolapse of the ovary, with neuralgic or inflammatory complication.

Neuromata.

Diseases of the rectum, such as fissure at the anus.

Abnormally rigid perineum.

Fistula, ulcer, inflamed piles, impacted fæces, and coccygodinia.

Imperfect, violent, unskilful, or too frequent attempts at intercourse.

Imperfect or disproportionate development in the male and the female organs.

Tumours or growths from the vulva.

Displacements of the uterus, more especially retroversion and flexion.

Pelvic cellulitis and peritonitis, both in the acute and chronic stage, fixity of the uterus being the chief cause in the latter.

Cancer and fibroid tumours of the uterus.

Contraction or atresia of the vulva and vagina, the result of disease, injury, or cicatricial processes.

In many instances proceedings have been instituted to establish a nullity of marriage on the plea that completion of the marriage contract could not be effected owing to some congenital malformation. There may be an absence of the vagina, or imperfect development of it, in the form of unusual narrowness or shortness of the canal, either from the uterus being set too low in the pelvis, so that the os uteri is within an inch or so of the vulva, or from undue

length of the vaginal portion of the cervix, which projects as a conical mass into the vagina. The hymen may be dense and unyielding, or there may be unusual depth of the pubic arch.

Dyspareunia commonly entails sterility, but not always, for though intercourse may be difficult and painful, still it may be accomplished ; and again, complete intercourse is not necessary for impregnation. The causes which induce dyspareunia are also often of themselves obstacles to impregnation. The nervous irritation produced is often extreme, the health breaks down from the exhaustion produced by repeated suffering, and so much misery is caused in some cases that the mind gives way.

Symptoms.—These will naturally vary with the cause producing this condition. Painful or difficult coitus may be regarded as the generic symptom, but the kind and degree of this will depend upon circumstances.

In one case the mere contact of the finger or male organ will serve to produce the most violent spasm, in another little or no inconvenience is experienced at the orifice, but severe aching, or dragging, or sickening pain is complained of when pressure is made further in. If any condition of the pelvic organs be detected in married women likely to produce inconvenience in sexual relations, although no complaint may have been made by the patient beforehand, the practitioner will do well to inquire more carefully into the matter.

Treatment.—Remembering that dyspareunia is seldom an idiopathic but generally a symptomatic disorder, our first effort should be directed to ascertaining the causal condition. This may need much care and consideration on the part of the practitioner, but it will well repay him,

for unless he succeed, treatment can but be empirical, and will probably be of little avail. Should any imperforate condition or unusual thickening of the hymen be detected, the propriety of an operation for its relief will at once occur.

In the case of a newly-married patient it will generally be advisable to administer some anæsthetic, not so much with a view to rendering her unconscious of pain, as to relieve the natural distress incidental to the exposure and requisite manipulation. Should the hymen be found to be intact, a crucial incision may be made and the opportunity taken of passing a speculum to dilate the vaginal orifice, a little lint soaked in carbolised oil being then inserted to prevent adhesion between the divided edges.

Occasionally it happens that some small vessel is divided, and the hæmorrhage is somewhat free. Cold, torsion, ligature, the application of nitric acid or caustic to the bleeding point, or failing these a touch with a red-hot knitting needle, will generally succeed in arresting the hæmorrhage.

Where hyperæsthesia or undue sensitiveness of the vulval orifice is present, physiological rest for a time, hip-baths, tonics, local sedatives in the form of pessaries, ointments, or lotions will be advisable.

Change of air, sea-bathing, bodily exercise, and strict attention to the laws of health, will also assist materially in improving the tone of the nervous system and contributing towards recovery.

Where excoriations or fissures of the vulva exist, the application of the argent. nitratis, either in form of solid stick or a strong solution (℈j. ad ʒj. aquam) is generally advisable. This condition is by no means infrequent during the first week of married life, and is mainly due to

imperfect, awkward, or frequent attempts at coitus. Abstinence for a few days must be enjoined, hip-baths, lead lotion, or borax or zinc will generally succeed in affording speedy relief. The employment of cold cream or olive oil subsequently will obviate further difficulty.

Occasionally a form of obstinate and recurrent superficial excoriation, analogous to lupus, associated with small tubercles, exists. The application of the actual cautery, or strong caustics, such as nitric acid, will here be indicated.

The careful application of very strong carbolic acid to an excoriated surface has the effect of producing a healthier condition of the part, and also of deadening the excessive sensibility.

Where dyspareunia arises from vascular growths from the meatus urinarius, the application of the galvanic cautery, chromic acid, pernitrate of mercury, or removal by the aid of Paquelius Cautery will generally be required.

Follicular inflammation of the vulva occasionally occurs from neglect of cleanliness, the irritation caused by vaginal discharges or the so-called leucorrhœa of pregnancy. This produces much burning and discomfort, and renders coitus painful and impracticable.

Bathing, sedative lotions, the application of a solution of argent. nitratis, together with vaginal injections, will soon relieve the symptoms.

Where unusual depth of the pubic arch exists, the vulval aperture is carried much further back than usual, the patient being as it is called "deep set." In such cases attempts at coitus are unsuccessful, and much mental anxiety and local distress are occasioned. The patient is possibly told that she is not rightly formed, which adds con-

siderably to the irritation already produced by unfulfilled desires. Surgical interference is here uncalled for; a change from the supine to the lateral position only, "*more ferarum*," will overcome the difficulty and obviate an otherwise frequent and fruitful source of conjugal infelicity.

Where disproportionate development in the male and female organs exists, or where the vaginal orifice seems to be very small, it may be advisable to enlarge it by a few incisions through the skin, a speculum being passed on alternate days, gradually increasing the size for a short time, or the patient herself directed to insert Sims's vaginal dilator or Barnes's vaginal rest, and wear it for a few hours each day.

Physiological rest should be enjoined absolutely until the incisions have healed, and the parts should be well lubricated before any further attempts are made.

It will be unnecessary to enter seriatim into the treatment of all the various causes producing dyspareunia, the mere enumeration of the causes themselves will be sufficient to guide the practitioner. The surgical treatment of vaginismus has already been fully discussed under this latter heading.

STENOSIS OF THE OS INTERNUM.

According to Bennet, the interior of the uterus does not present, as is generally supposed, a single cavity, reached by a channel or passage through the neck, but a double cavity, one belonging to the body of the uterus, and the other to the neck itself. At the union of the

two cavities there is, during life, a natural stricture or coarctation, which closes the cavity of the uterus, and is sufficient to prevent even a small sound penetrating into the uterus unless considerable force be used. The entire cervical canal is physiologically endowed with considerable contractile power, which may be much modified, increased, or diminished by disease.

Barnes, Schroeder, and others regard stenosis of the internal os as so rare as seldom or never to require any operative interference. When obstruction is experienced at the os internum, Barnes finds it almost always to be due to the flattening of the canal at this point, caused by extreme flexion or angulation of the body of the uterus upon the neck. The fact remains, that in many women who suffer from dysmenorrhœa and sterility, the sound passes with difficulty the internal os, and that when incision of this is practised, one or both of these conditions are relieved. The cure of the sterility is not nearly as frequent as the cure of the dysmenorrhœa, but, it must be remembered, impregnation is a far more complicated process than menstruation.

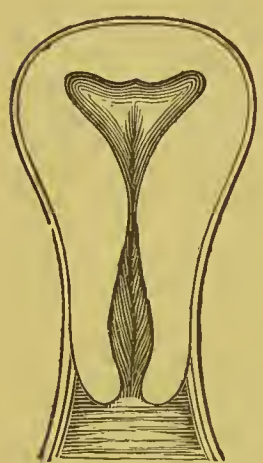

FIG. 4.—THE CAVITIES OF THE UTERUS AND CERVIX AS THEY ARE DURING LIFE. (After Bennet.)

Acquired stenosis of the internal os, or of some portion of the cervical canal, has been known to ensue from the too energetic application of caustics, resulting in cicatricial contraction, or from some operative interference upon the cervix.

Inability to pass an ordinary sized uterine sound beyond

the internal os does not necessarily prove that there is stenosis—there may be merely spasmodic contraction, which will pass off, and allow the sound to enter if gentle pressure be persisted in, or the uterus itself may be acutely flexed, a far more common form of obstruction than stenosis. A metal sound, of about $\frac{1}{5}$ in. diameter, gradually tapering at the point to about $\frac{1}{8}$ in., is better adapted to detect any contraction at the internal os than an ordinary uterine sound. If this can be passed readily, and no flexion of the uterus exists, there is no necessity to resort to operative measures.

Treatment.—Two distinct methods are available, viz. :—(1) *Dilatation* by means of graduated sounds or bougies, sponge or laminaria tents, and by expanding instruments. (2) *Incision*, whether by knife, scissors, or metrotome.

Dilatation.—In some few instances the mere passage of the uterine sound through the cervical canal, a few days before the expected appearance of the catamenia, will serve to materially diminish the spasm and constriction usually produced at such times. But, as a rule, the passage of graduated bougies or metallic rods, commencing with a size that can be passed with little difficulty, will be found requisite. If a No. 4 size be passed and left *in situ* for a few minutes, provided it does not cause much inconvenience, a No. 6 or 7 may then be passed, and retained *in situ* for five or ten minutes. It is well to begin gradually and carefully, and not attempt to accomplish too much at one interview. A convenient plan is to have a series of graduated ends, made of pure copper, electroplated, so as to bend easily, which fit into one handle, as in fig. 25. The sizes may range from a No. 4 up to No. 12. A few days afterwards we may commence with a No. 8, and gradually

increase the size up to No. 10 or even 12, beyond which it is seldom requisite to go.

The best time to commence this treatment is about a week after the period has passed, persevering every few days until the next period is due, when we shall probably find the pain usually attending the process is materially diminished. After this, the occasional passage of a moderate sized bougie shortly before the expected period will serve to prevent a relapse, though, unfortunately, this method can scarcely be regarded as one of permanent utility, unless, perchance, impregnation ensues, when the difficulty is at an end.

FIG. 5.
SPONGE TENT.

FIG. 5A.
LAMINARIA TENT.

Dilatation of the Cervix uteri by means of Tents.—If this method be decided upon, the two substances generally employed are the sponge tent (fig. 5) and the *Laminaria Digitata* or sea tangle (fig 5A).

The sponge tent should taper gradually from apex to base, so as to present a uniformly conical shape, not bulging in the centre as often made, and the string for its removal should pass completely through the centre from one end to the other, as in fig. 5, so as to avoid any risk

of a portion of the tent being broken off on attempting to withdraw it.

The hollow sea-tangle tents (fig. 5A) are to be preferred, both an account of the facility of introducing them, and by reason of their swelling more rapidly than occurs with the solid ones. In some instances considerable pain, amounting to almost insupportable agony, is produced during the dilatation of a laminaria tent.

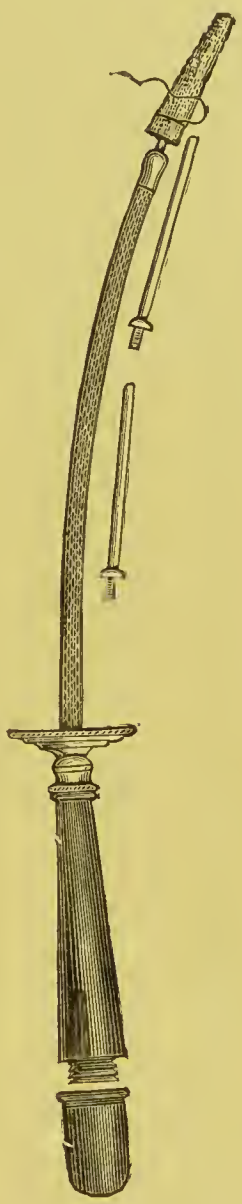

FIG. 6.—BARNES'S TENT INTRODUCER.

FIG. 7.

To introduce a carbolized sponge tent, the patient should be placed in the usual position for examination, a tubular speculum inserted, for otherwise the sponge becomes softened and swollen before it reaches the os, and then having fixed the tent on a pointed stilette, curved similar to a uterine sound, or on Barnes's tent introducer, (fig. 6) or held by a long pair of forceps (fig. 7), the point is inserted in the os, the direction of the canal having previously been ascertained by digital examination, and the passage of the uterine sound, the tent is pressed in the

direction indicated, care being taken to insert it completely within the os, otherwise it will probably be expelled before accomplishing the object for which it was introduced ; a plug of carbolized cotton-wool soaked in glycerine may then be placed against the os and the speculum withdrawn, the patient being instructed to remain perfectly quiet.

Should any difficulty arise from the uterus being pushed up and receding before the tent, it will be advisable to draw down the anterior lip of the cervix by means of a tenaculum so as to hold the uterus firmly.

As a rule, six hours is sufficiently long to leave a sponge tent in ; it should then be withdrawn, and if the cervix be not sufficiently dilated the vagina should be syringed out with some antiseptic fluid and a larger sponge tent introduced, six to eight hours being allowed before being again interfered with. If much pain or inconvenience be caused during the process of dilatation it is always better to give opium, or inject morphia hypodermically, or pass a suppository of opium.

Nausea or vomiting, heats and chills, at times occur. The pulse may increase considerably in frequency, and the temperature run up. In this case it will be better not to persist in the employment of tents, but wait until the irritation set up has subsided.

Where a laminaria tent is employed it is seldom requisite to pass a speculum, but having duly softened and bent the sea-weed, insert a pointed stilette in the centre, and let it be passed much as a uterine sound would be. If any difficulty be experienced, a Sims's speculum may be employed if requisite, and a tenaculum used to fix the cervix.

After remaining in twelve hours, attempts may be made to remove it by drawing on the thread attached to the extremity of the tent; should this break, or the removal be found to be impossible, the speculum must be introduced, and the projecting end of the tent seized by the forceps, and so withdrawn. In cases where the tent has been passed completely in utero, the os remaining closed over it so as to prevent the extraction, if the end cannot be seized by a properly constructed pair of forceps, and the os dilated by pulling on the tent, it may be requisite to incise the os slightly, or to insert another tent by the side until the os is sufficiently dilated to allow of its withdrawal.

The advantages of using the laminaria in place of sponge tent are:—

1. Where moderate dilatation is required, the laminaria is preferable to the sponge tent.

2. If placed in warm water, just before the introduction for a few minutes, they become flexible, coated with mucilage, are easily curved to suit the cervical canal, and may be inserted with the utmost facility.

3. From their smoothness and softness they are removed without force, and produce no abrasion or irritation.

4. They do not become putrid, and, therefore, poisonous, as do sponge tents.

The laminaria will be found of great benefit in obstructive dysmenorrhœa if introduced a few days before the menstrual period, and also in cases of uterine catarrh connected with contracted cervix; they prepare the way well too for all intra-uterine medication. In either case, if softened in hot water before introduction, they rarely produce any pain or irritation on introduction.

The advantage of a sponge tent is that as it dilates it insinuates itself into the folds of the cervical mucous membrane, and thus tends to modify its surface, entangling in its meshes any granulations and causing atrophy of them, or tearing them away when the tent is withdrawn. It is less liable to slip out as it expands, causes less pain, and also serves as a more efficient plug in cases of hæmorrhage than a laminaria tent. The chief disadvantage of sponge is that it becomes very offensive if retained many hours.

The laminaria tent can be made smaller than a sponge tent, and is, therefore, more readily introduced; it is smoother, and is capable of overcoming greater resistance in expansion than a sponge tent.

Dangers and Precautions.—Much has been written respecting the danger of resorting to this method of investigation, and the practitioner will do well to consider carefully the risks incurred before passing a sponge tent. Several instances have been recorded of death from peritonitis, pelvic cellulitis, tetanus, septicæmia, &c., due entirely to the passage of a tent, and it is very probable that numerous other instances could be cited were all the fatal cases published. To avoid as far as possible these risks, Dr. Thomas suggests that the followiug points should be attended to:—

1st. No force whatever should be employed; either the direction must be altered or a smaller tent be made use of if any difficulty occur.

2nd. The patient should always be seen at her own residence or in hospital, and she should be confined strictly to bed during the process of dilatation. Never think of inserting a tent and then allowing the patient to go home, with instructions to withdraw it in so many hours' time.

3rd. Never allow a tent to remain in the uterus longer than twenty-four hours; as a rule twelve hours is sufficient, and much safer.

4th. Remove the tent, and let the vagina be syringed gently, not forcibly, with some antiseptic fluid, as carbolic acid, or other disinfectant. Should any rigor, pain, or other discomfort ensue, give quinine and opium, and keep the patient perfectly quiet in bed.

5th. In any case keep the patient in bed for the first twenty-four hours following the withdrawal of the tent, prohibit strictly any sexual relations, and do not permit her to travel for several days afterwards.

6th. Where any previous history of pelvic peritonitis or pelvic cellulitis exists, or where the uterus is already in an inflamed condition, never employ a sponge tent unless after previous leeching and other precautions, and not then without explaining the risk in doing so.

The dangers inseparable from the employment of tents to dilate the cervix should deter any but those having special experience in gynecology from resorting to them. A young woman in perfect health, who suffers periodically from dysmenorrhœa, or who fails to conceive within a twelvemonth after her marriage, has a laminaria tent inserted within the cervical canal a few days before her expected period. The tent is only allowed to remain in six or eight hours, and yet peritonitis develops itself and proves fatal within a few days. Such cases are most distressing, not only to the friends but also to the practitioner. The danger seems to be greater in those cases where a series of tents has been employed to effect progressive dilatation. It is well, therefore, not to use tents twice in immediate succession, and to adopt every antiseptic pre-

caution possible, such as syringing the vagina well with carbolized water before inserting a tent, and again on withdrawal, carbolizing the tent, packing the vagina with a tampon of cotton-wool soaked in carbolized glycerine, and being extremely careful that the examining finger and any instruments employed are thoroughly clean or disinfected. Where serious symptoms occur, the presumption is that septic material becomes absorbed by the lymphatics, the tent producing a lymphangitis or angeioleucitis in the abundant network of uterine lymphatics; the inflammation spreads rapidly along their course to the peritoneum and pelvic areolar tissue, and peritonitis, cellulitis, or septicæmia results.

Fig. 8.—Priestley's Uterine Dilator.

The tendency of the last few years has unquestionably been to resort to methods of rapid dilatation, and not to employ tents.

Dilatation by means of expanding instruments has been tried in many cases successfully. Several ingenious inventions, similar to those employed for rapid dilatation of stricture in the male, have been devised. One of the best is probably Priestley's dilator (fig. 8). The instrument, when closed, can be passed like an ordinary uterine sound. When in the cervical canal the screw at the end is turned, and dilatation accomplished. The operation is somewhat painful, and as a rule should only be done when the patient is in bed, as it is apt to cause a feeling of faint-

ness. The pain rapidly subsides. There is seldom any hæmorrhage to speak of. In very nervous patients it will be well to give a few whiffs of chloroform before dilating, and to pass a morphia suppository either before or immediately after the operation, the patient remaining in bed until the following day.

A modification of Holt's stricture dilator is also used for rapid dilatation.

Rapid dilatation of the cervical canal by the aid of Ellinger's cervical dilator and the insertion of an intra-uterine stem has proved most satisfactory in many instances.

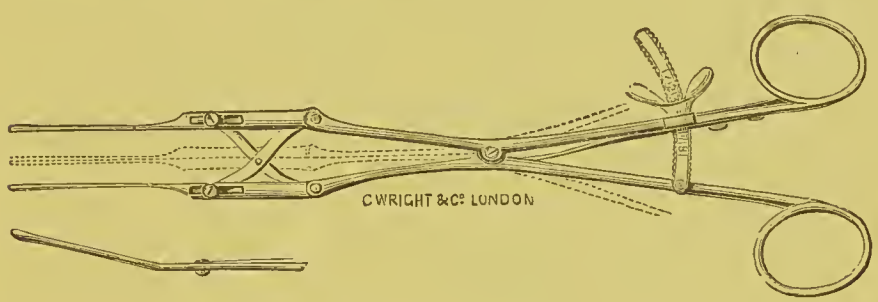

FIG. 9.—ELLINGER'S CERVICAL DILATOR.

The time best suited for operating is about a week after the menstrual period. An anæsthetic is administered, the patient placed in Sims's position, and the speculum then passed. The anterior cervical lip is seized with the tenaculum forceps and gently drawn down. The dilator is then introduced beyond the internal os, and the blades slowly separated until the index shows they are at least an inch apart. A stem is then passed and a tampon to keep it in place. The after treatment must be carefully followed up.

Dr. Franklin Townsend has reported* ninety cases of

* Transactions of the American Association of Obstetricians and Gynecologists. Vol. ii., 1889, p. 220.

rapid dilatation by this method of the uterine canal for the cure of dysmenorrhœa and sterility, under the influence of complete anæsthesia, with results most gratifying and noteworthy. Of fifty-seven cases of dilatation in virgins for dysmenorrhœa, other means failing, fifty-three were reported as completely cured. Of thirty-three cases of dilatation in married women for dysmenorrhœa and sterility, other means failing, all were cured of dysmenorrhœa and twenty-seven of sterility, only six remaining sterile two years or more after operation.

A judicious selection of cases, carefully excluding all those where perimetritic and cellulitic inflammatory troubles or salpingitis, is essential for success.

Incision of the cervix in place of dilatation by the means enumerated, may be accomplished in various ways, but should never be resorted to until other less hazardous means have been tried, and failed.

Incision through the internal os uteri is attended by considerable risk, as the blood-vessels enter the cervix just about this level, and the venous canals are maintained as more or less rigid tubes. Hence the danger of hæmorrhage, as well as of inflammation and septicæmia. Where obstruction to the patency of the cervical canal exists at this point, it is almost invariably due to flexion, and if this be overcome the obstruction will at the same time be removed.

Should, however, it be thought advisable in any given case to divide the internal os, an anæsthetic having been administered, Simpson's single-bladed metrotome (fig. 10) may be employed. Numerous double metrotomes have been invented, but their action is too mechanical, and too little under control of sight and touch, for them to be resorted to with safety. If any obliquity of the uteris, or

variation in thickness or density of the two sides of the cervix exists, an opening may readily be made into the peritoneal cavity.

In some instances where severe pain is experienced on passing the uterine sound through the internal os, the mere nicking of this with an instrument like Civiale's urethrotome (fig. 11), and the passage of a large bougie or dilator, often proves of much service in allaying the pain and facilitating further treatment.

Fig. 10.—Simpson's Metrotome.

Fig. 11.—Civiale's Urethrotome.

Whatever form of incision be adopted, the success of the operation depends upon the after treatment. The patient must be kept quiet in bed for several days to avoid risk of hæmorrhage. Should this be troublesome, it is well to expose the cervix through the speculum, clear away all clots, seize one lip with a tenaculum hook, so as to steady the cervix, and at the same time render the os patulous, then insert a small strip of lint soaked in liq. ferri perchl. or tinct. iodi into the incision;

packing the cul-de-sac of the vagina with tampons of cotton-wool, soaked in glycerine or carbolized oil.

If no hæmorrhage ensue after the operation, a glass or galvanic stem may be inserted on the following day, and allowed to remain in for several weeks. Barnes's galvanic coil pessary has the advantage of stimulating development, and being flexible is less likely to injure the uterus than a rigid stem. As long as this is retained, the patient must be carefully watched and instructed to avoid all risk of cold or over-fatigue, more especially at the menstrual epochs, lest peritonitis or cellulitis be set up.

It will be necessary to wear the stem for several weeks to avoid contraction of the cervical canal. It is well to warn the patient that immunity from pain, presuming dysmenorrhœa was present, does not always follow the operation, or not for some little time, nor does conception invariably occur, lest disappointment be expressed at the result. It often happens that before a patient will submit to operative treatment, the general health has been allowed to become considerably impaired, and the tone of the nervous system very much lowered ; this will necessitate time, and appropriate constitutional treatment. It is comparatively rarely that entire failure results if only the cases for operation are judiciously selected, and too much time has not elapsed since the commencement of the symptoms. Success is in proportion to the earliness of treatment. The important point is to operate before secondary changes in the uterus and ovaries have been established.

Incision of the cervix should never be performed where any antecedent history of pelvic peritonitis or cellulitis exists, nor where the uterus is in an inflammatory condition at the time of proposed operation.

The greatest care should always be taken to see that the instruments are perfectly clean, and the strictest cleanliness must be observed throughout the after treatment of the case. No one who has been recently in attendance upon cases of erysipelas, diphtheria, scarlatina, or post partum fever should think of operating.

In contrasting the results obtained by division of the cervix with dilatation by tents, the former method seems to be attended by less risks. If care be taken to follow up the treatment, the permanent effects are also more satisfactory.

It is important to determine in each individual case the actual condition of the pelvic organs before deciding upon which method shall be adopted, and not to resort to any active treatment unless there is a clear indication for so doing.

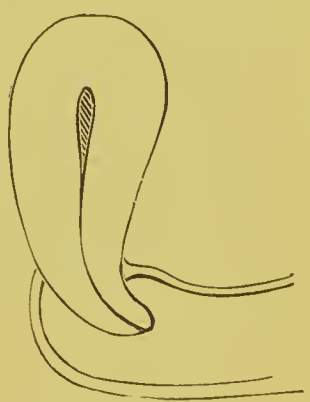

FIG. 12.
CONOIDAL CERVIX.

Conical Cervix and Stenosis of Os Externum, is not infrequently found as a congenital condition associated with imperfect development of the uterus or ovaries.

The tapering cervix projects further than usual into the vagina, and is often curved forwards, the posterior lip being lengthened and the anterior shortened. There may be stenosis both of the internal as well as the external os, but the latter is generally most marked. The cervical canal itself is fairly normal in size between these two points. The vagina is often smaller than usual, and there may be an infantile form of pelvis, with absence of sexual feeling.

Dysmenorrhœa is usually present. The pain, situated chiefly in the sacral and iliac regions, radiates to the loins, down the inner side of the thighs, and at times assumes the character of severe forcing or expulsive pain, unfitting the patient for the least exertion, and compelling her to keep in bed. Pain is not, however, an invariable symptom. Where the menstrual discharge is scanty, and the mucous membrane becomes completely disintegrated, there may be no evidence of obstruction or pain ; but where menorrhagia results, and clots or shreds of decidua attempt to pass, violent spasmodic pain is produced by the contractions of the uterus in endeavouring to overcome the difficulty.

In sensitive patients the agony is often intense, causing vomiting or retching, and even syncope, or extreme prostration bordering on collapse, leaving her exhausted in body and depressed in mind from the amount of physical suffering she has undergone, as well as the ever present sense of the inevitable return of the pain within a few weeks. The breasts are often extremely painful ; the abdomen becomes distended and tympanitic, headache, nausea, and inability to take food, and other sympathetic disorders, all contribute to render the patient's condition most distressing.

Sterility is an almost invariable accompaniment of this stenosis of the os externum, and in some cases is the only symptom that suggests to the patient the necessity of appealing to us for assistance.

In consequence of the impediment to the free exit of the menstrual secretion, a certain amount of congestion of the uterus ensues, disposing to menorrhagia ; this, together with the efforts at expulsion, cause spasm and colic, and lead ultimately to hypertrophy of the uterus.

Endometritis may be produced by the irritation due to retention of the menstrual secretion ; ovarian irritation, or inflammation, being often set up, as also pelvic peritonitis. In some instances the Fallopian tubes become dilated, the menstrual fluid, unable to escape freely through the cervix, is forced back through the patulous tubes, and gives rise to pelvic hæmatocele.

In married patients the tendency to these complications is still further increased. Should impregnation by any chance occur, abortion is by no means infrequent, but dysmenorrhœa and sterility are the rule.

Dilatation, whether by tents or instrumental dilators, is generally unsatisfactory ; the os contracting again within

FIG. 13.—KÜCHENMEISTER'S SCISSORS.

a very short time. Incision, by means of the metrotome (fig. 10), or by a scimitar-shaped knife, or by Küchenmeister's scissors (fig. 13), is the better plan.

It is well to select the week after the menstrual period for the operation. Unless the patient be very nervous, or very sensitive to pain, it is not always necessary to produce anæsthesia. Should the os uteri be so minute as not to admit even the point of the metrotome, it may be well to pass a short tubular, or Sims's speculum, get the os well into view, and incise it by means of a bistoury or knife.

The metrotome may then be passed just up to the internal os, and gradually expanded as it is withdrawn, so as to make the incision triangular in form, the base being

at the lower portion, where the vaginal cervix is cut through. Where the body of the uterus is nearly in the same axis as the cervix, it is better to make moderate incisions bilaterally; but if the stenosis is associated with anteflexion, it is better to divide the posterior wall only of the cervix freely, so as to lessen the difference, as much as possible, between the axes of the cervix and the fundus uteri.

Küchenmeister's scissors are very convenient for this operation, as they prevent the cervix receding when the blades are closed.

The patient being placed in the semi-prone position, a Sims's speculum is passed. The anterior lip is then seized with a tenaculum or valsellum forceps and the probe-pointed blade passed along the canal. If two incisions are made in the posterior lip about one-third of an inch apart, the intervening flap ultimately atrophies somewhat and thus prevents the os again contracting to its original state.

To restrain hæmorrhage, as also to prevent union by first intention, a dossil of cotton-wool or lint steeped in the perchloride of iron should be passed just within the incisions, the speculum being used for this purpose. A plug or two of cotton-wool, steeped in iodized glycerine, should then be inserted up to the cervix, and the patient kept perfectly quiet in bed for the next few days. The plugs should be removed the next day, and the vagina syringed out with warm water, to which a little carbolic acid or tincture of iodine may be added. The cotton-wool placed within the incisions may be left until it comes away of its own accord from the syringing. Occasionally secondary hæmorrhage occurs when this happens, and may need a reapplication of the iron to check it.

After the operation care must subsequently be taken not to allow the wound to close up; the occasional introduction of a large bougie may be resorted to from time to time with this object, or an indiarubber, glass, vulcanite, or galvanic intra-uterine stem may be inserted, and worn until the next period be due, when it should be removed. When the incision has been extensive, it is better to keep the patient at rest for the first week or ten days, vaginal injection being used daily. She should remain in bed during the menstrual period to guard against complications, such as congestive hypertrophy, hæmatocele, menorrhagia, &c. Menstruation generally returns before the parts have become thoroughly healed, while the pelvic vessels are still overcharged, in consequence of the irritation following upon the operation, and as an accompaniment of the reparative process.

The operation should never be resorted to without warning the patient of the possible risk of untoward symptoms arising, nor unless she promises to remain in bed as long as the operator may deem prudent.

If the discharge should be in the least offensive after the operation, the stem must be at once removed, the vagina carefully irrigated, and carbolic acid or iodized phenol applied with a Playfair's probe to the raw surfaces of the incision.

ANTEFLEXION.

The cure of *anteflexions* is one demanding much patience, perseverance, skill, and experience. Not only will each individual case require some special plan of treatment, but what may seem to be the same identical condition in two different patients will often require essentially different management. A congenitally anteflexed uterus, where the organ is only moderately developed but extremely rigid, may require more active and prolonged treatment than an acquired flexion, where the uterus is softer, bulkier, more congested, or more prone to inflammatory mischief.

If any peri-uterine inflammation exists at the time of observation, or there is a history of such a condition having previously occurred, we should be extremely careful how we proceed, lest in our endeavour to overcome one evil we set up a greater, or rekindle into activity an inflammatory process that would otherwise have ultimately died out. The mere passage of the uterine sound has not infrequently given rise to an attack of pelvic peritonitis which has proved fatal. We should therefore endeavour carefully to estimate not only the *position* of the uterus as regards flexion, but also its *condition* in regard to congestion, inflammation, adhesions, &c., as well as the condition of the ovaries, the presence of any surrounding tumefaction, or other condition likely to influence our treatment of the case. A patient who has been more or less confined to the couch, unable to take exercise, whose

appetite is impaired, and general health much deteriorated, in consequence of a long-standing flexion of the uterus, will probably bear treatment far worse than another in whom the anteflexion has been accidentally discovered when examining to ascertain the cause of sterility, where there has been almost an entire absence of symptoms due to the flexion itself, beyond the sterility for which we are consulted.

In cases of primary or congenital anteflexion, and in acquired flexions of long standing, where the uterus is more or less rigid, we may first try what the occasional passage of the uterine sound will accomplish. The best time to commence treatment is shortly after the menstrual period, within a few days. The sound having been passed into the cervix as far as it will go without difficulty, generally to the internal os, the point is gently insinuated beyond the angle of flexion by pressing the handle of the sound well back towards the sacrum, and alternately pulling and pushing the point over the seat of obstruction. Having succeeded in passing the point of the sound as far as the fundus, if much pain be thereby produced it will be well to refrain from doing more than allowing the sound to remain in for a minute or two, and then withdrawing it. Should, however, its presence cause little or no inconvenience, the handle of the sound may be carried forward, the finger in the vagina pressing up at the same time the anterior cul-de-sac, so as to elevate the fundus uteri. By rotating the handle of the sound by a *tour de maître*, and then bringing it again forward, the fundus may be held back for a short time in a position of slight retroflexion. This movement may be assisted by the hand pressing externally on the abdomen just above the pubes.

If no marked inconvenience arise, the passage of the sound may be repeated at intervals of three or four days, to within a week of the expected return of the catamenia. Should the pain usually experienced at this period be much lessened, the occasional passage of the sound about once a week, for a short time, although it will not cure the anteflexion, will often prove sufficient to relieve urgent symptoms. If it be deemed expedient to attempt more, we may proceed to dilate the cervical canal by means of graduated bougies, increasing the size each time until a No. 10 or 12 will pass readily. This will have the effect of stimulating the development of the uterus, at the same time overcoming the constriction at the internal os.

Another method of accomplishing the same object is, by inserting a small laminaria tent within the canal of the uterus, and allowing it to remain in for eight or ten hours. This produces softening of the wall of the uterus, straightens out the flexion, and stimulates the development of the uterus. It is, however, not unattended by risk, and should never be resorted to until we have previously ascertained whether the uterus is tolerant of interference. The safest time to attempt it is a week or so after the menstrual period. The better plan is to pass the tent between the hours of 9 and 11 A.M., the patient remaining in bed. The tent should then be withdrawn between 6 and 9 P.M. A morphia suppository may be employed if much nausea or pain be produced. The following day the patient should be confined to the couch until the uterus has had time to contract again. She should keep lying on the back, and allow the bladder to remain distended as much as possible. If no inconven-

ience arise, the patient may resume her ordinary duties after this. The same process may be repeated again in ten days or a fortnight's time. It is not a prudent plan to insert a tent whilst in the consulting-room, and then allow the patient to return home. It should invariably be done at her residence when she is in bed.

The dysmenorrhœa, irritability of the bladder, and other symptoms are often thereby much improved, and impregnation not infrequently takes place.

Where it is found that the uterus does not resent interference, and that the advantage gained by occasional dilatation of the cervical canal is merely temporary, the dysmenorrhœa, or the sterility, or both, remaining uncured, we may try the effect of introducing a pliable indiarubber stem (fig. 14). Those usually met with are far too thick, the diameter of the stem should not exceed one-sixth of an inch. They are made of white, red, and pure black indiarubber. The black is most durable, and should be chosen by preference.

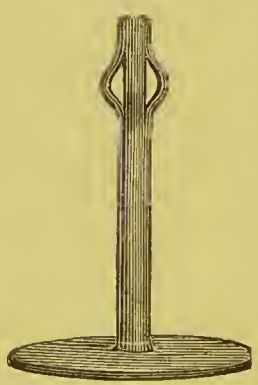

FIG. 14. — INDIA-RUBBER STEM PESSARY.

A bulging projection near the extremity assists in retaining them *in situ*. Those having the shield perforated are to be preferred. Although soft, elastic, and easily bent while out of the uterus, it becomes sufficiently firm when pressed equally on all sides by the canal of the cervix to gradually overcome all flexions, except in cases where the uterus is bound down to the surrounding parts. When the stem has been worn for some time, the enlarged and firm uterus becomes greatly reduced in size, and so

soft as closely to resemble that organ in the early stage of subinvolution, effects probably due to the freer exit of the secretions and the mucous discharge, which usually persists during the retention of the stem. It may be readily introduced on the end of an ordinary uterine sound, a Playfair's probe, or other similar instrument, which by elongating the stem somewhat obliterates the projection for the time being, and allows the stem to pass.

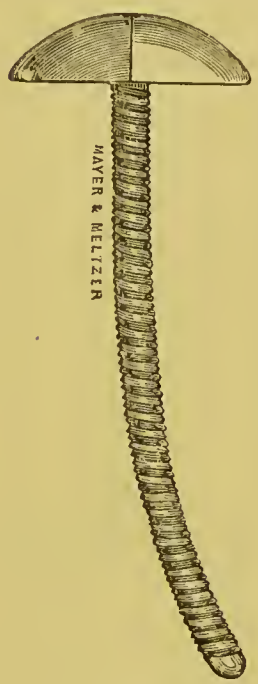

FIG. 15. — BARNES' GALVANIC STEM PESSARY.

It is not necessary to dilate the cervix by a tent before introducing the stem, though the passage of a No. 8 sound will facilitate its introduction. As a rule it is quite self-retaining. Should there be any tendency to slip out, a plug of cotton-wool saturated with glycerine may be pressed up against the shield so as to keep the stem *in situ*.

Where the vagina is very small, the elastic stem is passed with far greater facility than any of the ordinary stems with a large solid shield, and owing to its bending slightly when *in situ*, it is far less liable to be shot out, as not infrequently occurs with the solid stem.

Galvanic Stem Pessaries (fig. 15), consisting of alternate coils of copper and zinc wire, so as to render the stem somewhat pliable, are useful in many cases of flexion. They are not so rigid as to counteract entirely the flexion, but by setting up a kind of chemical, more than electrical

stimulus, owing to the constant slow production of chloride of zinc, they tend to stimulate the development of the uterus, increasing the menstrual flow as well as the secretion of mucus.

To introduce one of these where the vagina is small is often difficult. Having previously dilated the cervical canal sufficiently by means of graduated bougies, the patient lying in the left lateral, or semi-prone position, the right forefinger is introduced into the vagina. The stem, supported on a tent introducer, Playfair's probe, or uterine sound, is then passed alongside the finger until the disc impinges on the perineum; the extremity of the stem is meanwhile guided into the os uteri by the finger. When this is effected, the finger is partially withdrawn and made to press back the perineum, so that the disc may pass the vulval outlet, when, if the point had previously been directed into the os, the stem can then be passed along the cervical canal, until the disc approaches the cervix. The finger in the vagina, pressing up the fundus uteri in the anterior cul-de-sac, will assist the introduction of the stem. If much difficulty be experienced in passing the disc into the vagina, as not infrequently happens, it may be necessary to employ a small Sims's speculum to retract the perineum and expose the os uteri, so that the stem may be passed by sight instead of by touch.

The disc or bulb attached to these galvanic stems is usually made far too large for practical purposes. It may with advantage be lessened considerably. Should the stem show any disposition to slip out, a tampon of cotton-wool saturated in carbolized glycerine, or a small Hodge covered over with thin indiarubber (fig. 16) may be inserted into the vagina so as to retain the stem *in situ*.

Owing to the chemical action set up in the stem by the secretions, it becomes corroded and roughened, so that it is better to remove it every few weeks to see that no mischief arises, and to avoid any risk of the stem being broken.

Galvanic stems are also made of alternate pieces of zinc and copper, in various forms, which are rigid. These are more liable to produce mischief, unless closely watched. Peaslee's stem (fig. 17) is a good form to use.

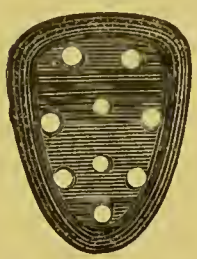

FIG. 16. — PESSARY WITH PERFORATED SEPTUM AND SPIRAL WIRE BETWEEN EXTREMITIES.

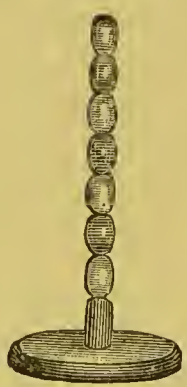

FIG. 17.—PEASLEE'S STEM PESSARY.

FIG. 18.—VULCANITE STEM PESSARY.

Slightly curved vulcanite stems, hollow in the centre, and perforated as in fig. 18, with a shield or disc at the lower end, are often of service where a rigid stem is preferred to an elastic one. Its length should be at least a quarter to half an inch less than the length of the uterine canal as measured by the sound, so as not to impinge upon the fundus. Where the flexion is acute or of long standing, there is a great tendency for the stem to be forced out beyond the angle of flexion, the upper part of the stem remaining in the cervical canal. To obviate this,

a plug of cotton-wool, as previously directed, may be inserted, or a covered Hodge. Where the uterus, however, is thrown into a position of anteversion on the insertion of the stem, the disc impinges on the posterior vaginal wall, and is thus prevented from slipping. A perfectly straight stem, whether of metal, vulcanite, or glass, should not as a rule be employed, since the natural form of the uterus is slightly curved.

Expanding stems will sometimes be retained when the ordinary straight stems are forced out. There are several varieties of these. As good a one as any is Wright's (fig. 19), or Chambers' modification of it in vulcanite. The expanding branches of the stem are held together by the hollow cylinder of the introducer, which slides over them during insertion. They spring open as soon as the introducer is withdrawn, and thus make the stem self-retaining.

The disadvantage is that the diverging points tend to press on the interior of the sides of the uterus, and so set up irritation, more especially as the weight of the fundus is sustained on the two projecting points. Other expanding stems, consisting of a hollow stem with diverging branches, are also employed. The great disadvantage of nearly all these is, that the diameter of the stem is too large for the majority of the cases in which their employment is necessitated.

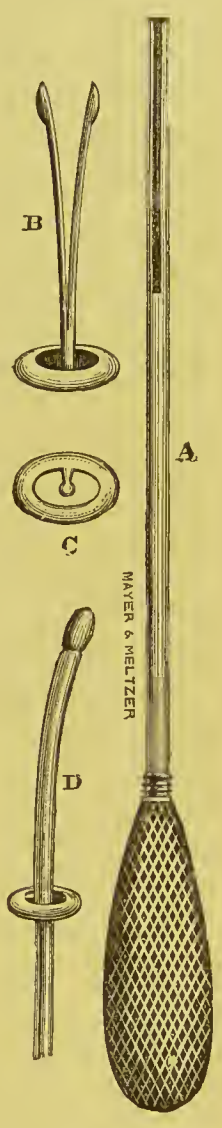

FIG. 19.
WRIGHT'S INTRA-UTERINE STEM PESSARY.

In all cases where evidence of inflammatory mischief exists, this must be first remedied before thinking of resorting to any mechanical treatment. The application of a few leeches, puncture with the scarifier, injections of hot water into the vagina, the application of plugs of cotton-wool morning and evening, saturated with glycerine or with glycerine and iodine, rest in bed for a few days, saline aperients, and other appropriate remedies, must first be tried. The sound may then be passed, in order to ascertain whether the uterus will tolerate interference. If no severe pain or constitutional disturbance ensue, the same measures may cautiously be adopted as previously described. Commencing with the mere passage of the sound, we may gradually proceed to restoring the position of the fundus, dilating the canal by graduated bougies or a laminaria tent, inserting an elastic, expanding, or vulcanite stem; watching carefully lest any symptoms of mischief arise, desisting from further treatment the moment there is any evidence of intolerance of it. Where there is a marked history of previous gonorrhœal infection, pelvic peritonitis, or cellulitis, we should, as a rule, avoid resorting to mechanical interference.

After the introduction of an intra-uterine stem, it is better to keep the patient in bed for the first few days, and see her daily. If any febrile symptoms occur the stem should at once be withdrawn. When these have subsided the stem may again be passed, but the patient must be carefully watched. She should always be either within reach, or be able to withdraw the stem by a string attached to it. It should, as a rule, be removed during the period of menstruation, until we have ascertained that the uterus tolerates its presence without inflammatory

mischief ensuing, when it may be allowed to remain in during the periods. In the case of married patients it is well to avoid all risks by enjoining abstinence for a time at least, as well as prohibiting all unnecessary exertion of any kind. There is always a certain amount of congestion, with increased secretion, as long as the stem is worn. On its removal, however, this soon subsides, and a process analogous to involution takes place. Impregnation not infrequently occurs within a few months. Even after parturition there is a great tendency for the flexion to recur, which may need treatment before impregnation again takes place. Flexions are generally of gradual production, not sudden, as is the case often with versions, so that we must be prepared to allow many months to elapse before expecting to straighten the uterine axis by means of a stem.

In those cases where difficulty is experienced in retaining a stem *in situ*, it may be necessary to resort to a combined intra-uterine stem and a vaginal support, but they should never be made in one piece, otherwise the mobility of the uterus is seriously interfered with, and the patient is exposed to danger from shocks. Still cases will be met with that test our ingenuity and tax our patience to the utmost, and, as these generally occur in patients determined to be cured, we need to have no end of devices to overcome the difficulties that beset us, and for this reason it may be well to mention a few of those most calculated to be of service.

Thomas's Anteflexion Pessary (fig. 20), consists of two parts; a stem of solid glass or vulcanite, 2 to 2½ in. long, ending below in a rounded bulb. This being introduced into the uterus, is supported by an ordinary anteflexion

pessary, between the branches of which a shallow vulcanite cup has been fixed, with a small hole in it for drainage. The fundus is thus supported partly by the pessary, and not entirely by the intra-uterine stem.

If the flexion be acute, and the cervical canal contracted, a laminaria tent may first be employed to straighten and dilate the canal. The stem is then inserted, and subsequently the pessary. The patient should remain in bed for three or four days, being watched carefully lest symptoms of irritation ensue. A small hole being drilled just above the shoulder of the stem, a silk thread is secured to the instrument, so that upon the first symptoms of mischief the patient can withdraw it by exercising traction upon the silk thread.

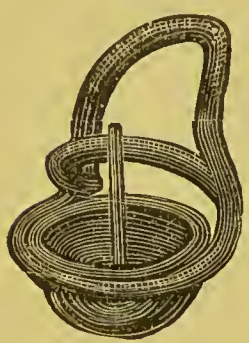

FIG. 20.—THOMAS'S ANTEFLEXION PESSARY.

The instrument should be removed during menstruation, and also if pain, chilliness, or feeling of general languor or discomfort arise. The patient should never be allowed to go beyond the reach of help whilst wearing one of these.

Hewitt's Anteflexion Stem Pessary consists of an intra-uterine stem, 1½ in. long, which is retained *in situ* by means of an oval disc of gutta percha, similar in shape to a Hodge's pessary, covered over one half by indiarubber sheeting. This disc is perforated so as to admit the lower end of the stem.

The two pieces are introduced separately, and, as a rule, should not be worn during the menstrual periods.

Wynn Williams's Stem Pessary is constructed on the same principle. An intra-uterine stem being supported on a

Hodge, covered with a diaphragm of perforated indiarubber, the bulb resting in a kind of socket or perforated cup (fig. 21). The stem is first passed into the uterus on the end of a stilette or tent introducer; the pessary, previously passed over the end of the rod, is then guided up into its place, the end of the stem being fitted into the cup.

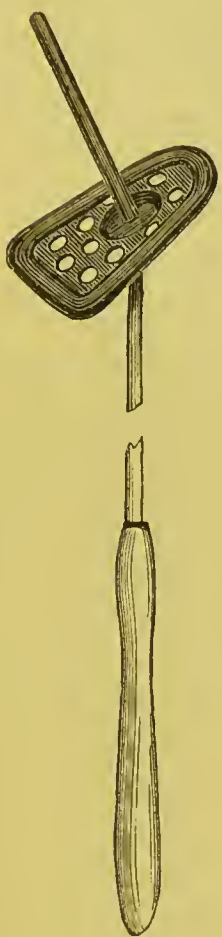

FIG. 21.—WYNN WILLIAMS'S STEM PESSARY AND INTRODUCER.

There are several varieties of these combined instruments, each of which possesses different advantages as well as disadvantages.

Cervical anteflexion will require a different plan of treatment to that suggested for corporeal anteflexion.

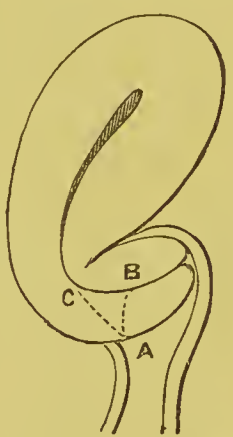

FIG. 22. — LINES OF INCISION IN FLEXION OF THE CERVIX. (After Emmet.)

The better plan is to incise the posterior wall of the cervix, from the external os as far back almost as the junction of the vagina, A, so as to make the axis of the uterine canal almost continuous with the axis of the vagina (fig. 22). The posterior lip of the cervix is first divided as far up as is prudent towards the vaginal cul-de-sac. The point of the scissors moving in the arc of a circle, A B, will thus leave a triangular portion, A B C, to be divided by means of a metrotome, ball and

socket knife, or bistoury, passed along a probe as a guide.

Apart from this advantage, this single incision posteriorly is preferable to the bilateral incision, as sometimes recommended, as the edges do not gape or roll out so much after they have healed, the flaps being kept sufficiently in contact by the lateral walls of the vagina; there is less risk of hæmorrhage proving troublesome, and there is also less risk of cellulitis ensuing.

The operation should be performed either with Küchenmeister's scissors (fig. 13), or with slightly curved, long-handled scissors (fig. 23), the cervix being steadied by means of a tenaculum. A dossil of cotton-wool, steeped in liq. ferri perchl., is inserted between the lips of the incision, to arrest hæmorrhage and keep the edges separate, so that they may not unite by first intention. The fundus vaginæ is then packed with cotton-wool steeped in carbolized glycerine, and the patient kept at rest in bed. The operation has been already described when speaking of stenosis of the external os.

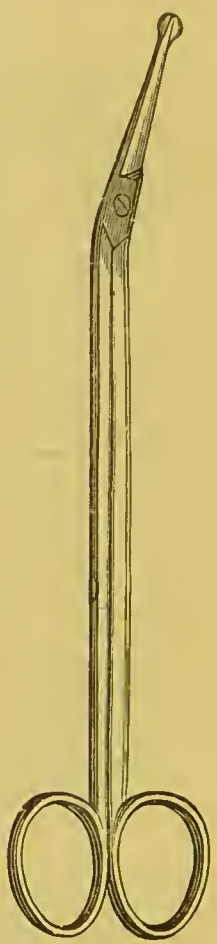

Fig. 23.
Long-handled Scissors.

Where the flexion is very acute, and the vaginal junction lower than usual, after having divided the posterior wall of the cervix by means of the scissors, it may be necessary to extend the incision still further backwards by passing the blade of the ball and socket knife, with its cutting edge backwards, into the

canal, and dividing the triangular portion that remains between the extremity of the first incision and the canal of the cervix.

Some authors recommend excising a strip of tissue, a quarter of an inch or more wide, from the posterior wall of the cervix, so as to obviate the possibility of the incision cicatrising up again. Others have suggested removing the entire posterior wall of the cervix. This is unnecessary. The double incision already described obviates the necessity of such heroic treatment.

RETROVERSION.

Where Retroversion exists, the first indication is to restore the uterus to its normal position, provided there are no adhesions binding it down, and so preventing replacement. This may generally be most readily effected by placing the patient in the semi-prone position, as adopted when using Sims's speculum, or still better by resorting to the genu-pectoral position. The index finger is then introduced per vaginam, and the posterior wall of this passage pulled backward, so as to allow atmospheric pressure to come into play. This alone may be sufficient to reduce the displacement.

When the patient is placed in the genu-pectoral position, the thighs being directly vertical or perpendicular to the surface on which she kneels, the body inclined at an angle of about 45° to the horizon, we get the most complete reversal of the bearings of gravity of which the human body

is capable, the inlet of the pelvis looks nearly vertically downwards.

The abdominal muscles being relaxed, we gain an additional advantage in the draft of the viscera, and when air is admitted to the vagina, the atmospheric pressure enables the uterus to recede, and thus regain its normal position. Should, however, reduction not take place, the finger may be employed to press the fundus downwards and forwards during a prolonged expiration.

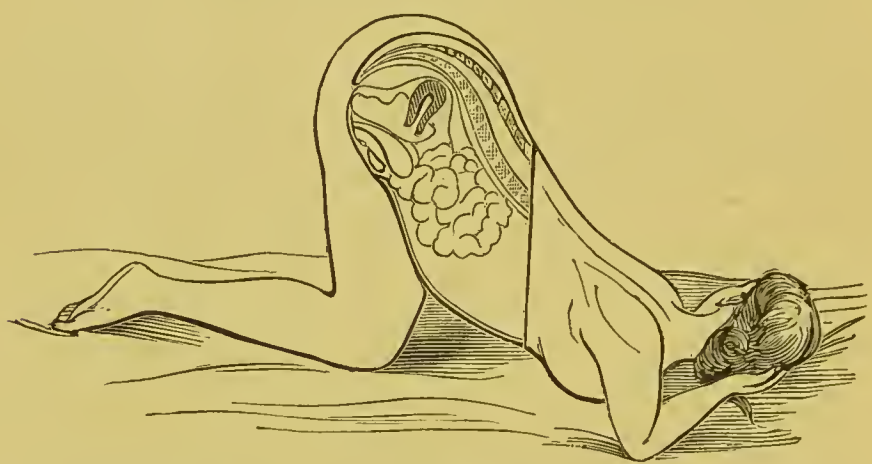

FIG. 24.—RETROVERSION. GENU-PECTORAL POSITION. (After Campbell.)

In order to overcome sterility, if precautions be taken to prevent the semen escaping from the vagina, and the patient then assumes the knee-shoulder position, the fundus, unless fixed by adhesions, falls forwards towards the abdominal cavity. The cervix then occupies the lowest part of the vaginal cul-de-sac, and thus affords an opportunity for the entrance of the semen into the cervical canal. That this is no mere theoretical, unpractical suggestion, abundant evidence could be cited, patients suffering from retroversion who had not hitherto become pregnant after

many years of married life, by resorting to this expedient have succeeded in overcoming the impediment to maternity.

Lucretius two thousand years ago wrote :—

> Nam more ferarum
> Quadrupedumque magis ritu plerumque putantur
> Concipere uxores, quia sic loca sumere possunt,
> Pectoribus positis, sublatis semina lumbis.

Where other means fail, it may be well to remember this

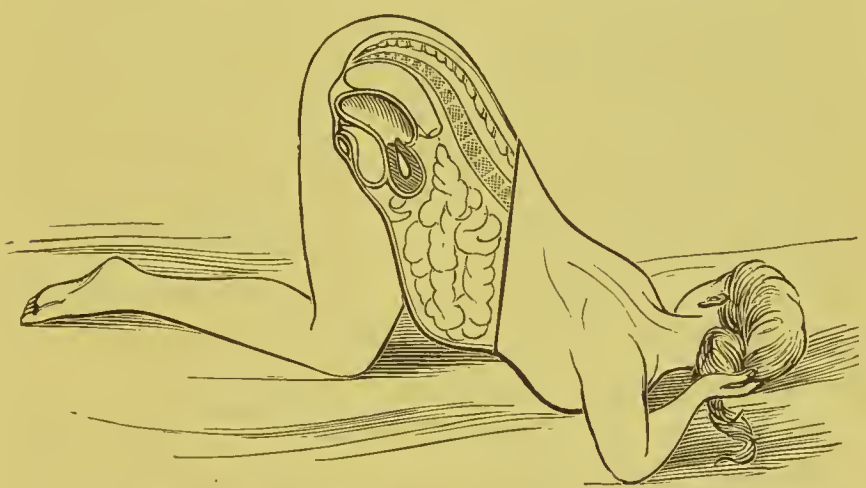

Fig. 25.—Replacement of Uterus by Genu-Pectoral Position. (After Campbell.)

suggestion, and where science cannot succeed in affording relief, art may legitimately be resorted to with a view to overcoming sterility.

Under no circumstances should any considerable amount of force be employed. If reduction be not readily effected by this method, the presumption is that adhesions exist which prevent the replacement of the uterus. Further efforts should be desisted from for the time being, the patient being directed to resort to the genu-pectoral position occasionally. This will lessen any congestion of the

uterus that may be present, and also tend to stretch gradually any adhesions that may exist, and so favour ultimate replacement of the uterus. Steady hydrostatic pressure by means of an india rubber bag or colpeuryuter, inserted per vaginam or per rectum, and distended with water, may be employed for a few hours daily with a similar object.

In some cases the insertion of an elastic ring or a Hodge's pessary, with a view to stretching the adhesions, may be indicated, thus accomplishing gradual reduction of the displacement where more rapid efforts would prove dangerous.

A method frequently resorted to to replace the uterus when retroverted is that by means of the uterine sound. This requires caution, and should not be attempted by those who do not possess the requisite skill or dexterity in manipulation, as mischief may readily be done in a few moments that may require weeks to recover from.

The patient lying in the lateral or semi-prone position, the uterine sound is introduced as far as the fundus, the handle of the sound being first carried well forward between the legs. The shaft of the sound being steadied by the fingers of the other hand near the centre, so as to form a fulcrum, the handle is then gradually drawn back posteriorly, the sound forming a lever of the first order. The fundus is thus lifted away from the sacrum, care being taken to direct the uterus slightly to one side, so as to avoid the promontory of the sacrum. The intra-uterine portion of the sound being now made to revolve on its own axis by making the handle of the sound describe a large semicircle, the sound is pressed well backwards again and the uterus thus anteverted.

If much resistance be experienced, or pain produced indicating the presence of adhesions, all further efforts at reduction should at once be abandoned, as otherwise the point of the sound may penetrate the uterus, and peritonitis ensue.

Having replaced the uterus in its normal position, our next object is to retain it there by some mechanical support until the uterine ligaments have recovered their tone and the natural supports are again available. Retroversion seldom occurs where the uterus is in a normal condition. There is generally some antecedent congestion, inflammation, or hypertrophy. The question will naturally arise, Shall we attempt to cure the coincident condition before replacing the uterus, or shall we replace the uterus first, and then endeavour to relieve congestion, &c.? As a general rule it will be found that by replacing the uterus in its normal position we facilitate treatment, and are more likely to be successful in curing the displacement as well as the condition which induced it. But should the uterus be too tender to tolerate a pessary sufficiently large to keep it in position, it may be necessary to resort to a preparatory course of treatment by the application of a few leeches; the employment of the syringe night and morning, with as hot water as can comfortably be borne; resort to the semi-prone or genu-pectoral position at frequent intervals; replacement of the uterus from time to time, and keeping it there by means of tampons of cotton-wool or oakum saturated with glycerine, medicated with iodine or carbolic acid, if thought desirable. A tampon, as large as a bantam's egg, is first pressed up in the posterior cul-de-sac behind the cervix. Another tampon is then placed below the cervix, and pushed up so as to elevate the uterus,

and, if possible, keep it slightly anteverted. Rest in the semi-prone position will favour this treatment, but the patient may be allowed to get up for a few hours each day.

A Hodge's pessary, or some modification of it, or an elastic ring, even if the uterus be tender, will generally be tolerated. Too large a one must not be employed at first, except in those cases where it is difficult to keep the uterus in place by a moderate-sized one, for fear of producing ulceration of the vagina by pressure. The instrument should be sufficiently long for the upper extremity to pass well up the posterior cul-de-sac behind the cervix, while the lower extremity is concealed behind the arch of the pubes, not descending low enough to interfere with the urethra, but resting against the anterior wall of the vagina.

When an appropriate one is adjusted, the patient is often unconscious of its presence. Under no circumstances should it be retained if pain or discomfort be complained of. A smaller one should be inserted, or any local congestion or inflammation first relieved.

The beneficial action of a Hodge's pessary is promoted by moderate exercise. The lower limb of the instrument being carried down as the anterior vaginal wall descends during the act of inspiration, the upper limb ascends in the posterior cul-de-sac, raising the fundus uteri and also pushing it forward. In time it will be found that the congestion usually accompanying retroversion diminishes as the uterus is kept in its proper position, and thus the tendency to retroversion is lessened.

The uterine ligaments meanwhile have an opportunity of recovering their tone, and if measures be adopted to

improve the general health, as well as to relieve any local disorder, the patient will in time be enabled to dispense with wearing the support.

The bowels must be carefully regulated, so as to avoid all risk of accumulation of fæces or the necessity for straining occurring. A little confection of senna, pulv. glycyrrhizæ co. (Ph. Pr.), Hunyadi Janos water, or other simple aperient, will often prove sufficient.

Any undue congestion of the uterus must be relieved by the application of a few leeches just after the menstrual period is over, or by puncturing the cervix with the lance-shaped scarifier, or by the regular daily employment of the hot-water vaginal douche. The insertion of a plug of cotton-wool saturated in glycerine, medicated with tannin, alum, iodine, &c., if deemed requisite, will keep up a continuous drain and so serve to deplete the uterus and lessen materially its bulk.

If there be abrasion or granular degeneration of the cervix, or cervical catarrh, these conditions must be relieved by appropriate treatment, such as the application of the nitrate of silver, carbolic acid, or other suitable agent. Astringent vaginal injections to strengthen the vagina will generally be needed. In any case, for cleanliness sake, it will be necessary to employ some form of vaginal injection as long as the patient continues to wear a pessary.

She should further be instructed not to pass water in the usual manner, sitting low on the chamber utensil, but to employ the night commode or w.c., so as to avoid any bearing down, which must inevitably happen when the patient squats in the way indicated.

In many cases of retroversion some form of Hodge's

pessary is a *sine quâ non*, but it should not be regarded as the only expedient requisite.

Reclining in the semi-prone, or resorting to the knee-shoulder position from time to time, will assist the action of the pessary materially, and often enable a patient to tolerate it when otherwise it could not be borne. Just before, during, and for some few days after each menstrual period, when the uterus is naturally heavier than usual, great care must be taken not to stand too long at a time, or to undertake any prolonged or severe exertion, the patient reclining whenever opportunity serves.

In some cases retroversion is complicated by prolapse of one or both ovaries in the posterior cul-de-sac of the vagina. They are often so tender as to effectually preclude any ordinary pessary being tolerated, so much discomfort, nausea, faintness, or intense agony being produced if a Hodge be inserted, that its immediate removal is necessitated. The postural treatment, in these cases, is often all that can be borne in the first instance. Local depletion by means of leeches may prove of service. The administration of scruple doses of the bromide of potassium, with or without belladonna, often relieves the ovarian congestion, and renders the organs more tolerant of pressure.

If we can succeed in adjusting a Hodge's pessary so as to restore the fundus to a more natural position, the ovaries are then drawn up as well.

This may often be effected by employing a somewhat larger Hodge than would otherwise be prudent, so as to render the vagina tense, and enable the posterior limb to rest between the fundus and the ovary, or by employing an elastic ring pessary.

If a little patience be exercised, and a few days' pre-

liminary rest be enjoined, we shall generally be able to adjust some form of Hodge's or ring pessary that will be tolerated.

RETROFLEXION.

Where retroflexion exists, our first object will generally be to replace the uterus and endeavour to restore the continuity of the axes of the uterine and cervical canals, so that the secretions from the body of the uterus may gain ready exit through the cervix.

If, as frequently happens, the uterus is not only retroflexed but also enlarged, inflamed, and tender, the patient experiencing much discomfort on even a digital examination, it will be better to enjoin a few days' rest in bed before commencing active treatment. The patient, however, must be instructed not to remain constantly lying on her back, but on her left side in the semi-prone position, the left arm being brought out behind the back, the body turned over on the chest, the head low, the knees drawn up towards the abdomen, as indicated when describing the employment of Sims's speculum.

This posture alone favours the return of the fundus to a more normal position. If in addition to this the index finger be employed to press the fundus gently forwards and downwards so as to sweep it under the promontory of the sacrum, taking the opportunity of allowing air to enter the vagina by pressing the posterior wall of the vagina well backwards, the uterus will thus be replaced, although the flexion will not be straightened out.

Where the uterus is very much increased in bulk, it may

be necessary to resort to the knee-shoulder posture, as indicated when speaking of the treatment of retroversion. The pressure of the abdominal organs is thus removed. The draft of the viscera falling forwards and downwards, exerts a suction force, which, when air is admitted by the vagina, secures the effect of atmospheric pressure, and allows the influence of gravity to come into play, so that we get what Campbell describes as pneumatic self-replacement of the uterus.

Having reduced the dislocation of the uterus in this way, the patient should let herself gently down into the semi-prone posture, and remain there as long as may be convenient.

If deemed requisite, a few leeches may be applied from time to time, or blood abstracted from the cervix by puncturing with the scarifier. Depletion of the swollen organ will still further be encouraged by the injection of hot water per vaginam, and the subsequent insertion of plugs of cotton-wool saturated in glycerine.

The engorgement of the uterus being thus materially diminished, with the diminution of bulk we get also a corresponding improvement as regards the flexion. Pressure being removed from the rectum, the bowels are thus enabled to act without pain or straining, and thus an important symptom—obstinate constipation—is not only removed, but the evil effects of straining and the passage of hardened fæces over the inflamed organ avoided. If necessary the action of the bowels may be assisted by means of small enemata, saline, or other simple aperients.

Having thus relieved the painful inflammatory condition of the uterus by these means, a Hodge's pessary, carefully adjusted to meet the requirements of the individual

case, may now be tried, together with an intra-uterine stem.

The great advantage of a Hodge's pessary is that the posterior limb stretches the posterior vaginal cul-de-sac backwards and upwards, tilting the fundus forwards and drawing the cervix backwards, so that the patient can be allowed to get up. The weight of the uterus itself, in the standing position, tends to remedy and not to aggravate the displacement, and the intestines, being again enabled to descend into the retro-uterine fossa, press upon the posterior surface of the uterus, and thus tend gradually to reduce the retroflexion. The patient should not be allowed to stand or walk too much for some little time after the introduction of the pessary and stem. So long as she is wearing them she must be carefully watched.

FIG. 26.—HODGE'S PESSARY FOR RETROVERSION.

In selecting a Hodge, our choice should be guided by the capacity and tonicity of the vagina, the bulk or tenderness of the uterus, the presence or absence of a prolapsed ovary, and the experience gained in each individual case as to the tolerance of a foreign body in the vagina. A moderate-sized one, with a well-marked posterior curve, that reaches well up behind the cervix, should first be tried. The patient should rest up from time to time and be seen daily, until we are satisfied that it fits properly and does not press unduly on the soft parts. The vagina should be syringed out once or twice a day with some appropriate lotion as long as the instrument is retained. It may be worn for several consecutive months without

removal, as long as opportunity be taken, now and again, to examine carefully in order to ascertain that it is not setting up any mischief. It does not interfere with coitus if properly adjusted ; in fact, impregnation is more likely to occur whilst the instrument is being worn than it was before. Should conception occur, frequent resort to the semi-prone or genu-pectoral position should be enjoined until the uterus has risen above the pelvic brim, which occurs about the fourth month, when the Hodge may be removed. The risk of abortion or of impaction of the gravid uterus in the pelvis is thus materially lessened. A difficulty not infrequently experienced is that the posterior limb of the Hodge fits into the concavity caused by the retroflexion of the uterus, the fundus remaining flexed over the pessary. In other cases the pessary, although it does not raise the fundus, still causes so much distress from pressure upon it, that it will be requisite to remove the pessary until the congestion of the uterus has been relieved and the beneficial effects of postural treatment have rendered the uterus less sensitive. In each of these cases some little care will be required in finding an appropriate shaped Hodge. Sometimes we find that one which stretches the vagina tightly causes less irritation than another which apparently is a much better fit. The posterior limb should be sufficiently bulky not to fit into the angle of flexion, as in *Thomas's Retroflexion Pessary* (fig. 27). Occasionally a Hodge, with indiarubber tubing in place of the solid posterior limb, or the Hodge

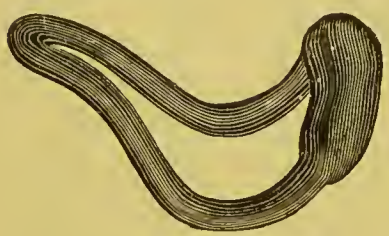

FIG. 27.—THOMAS'S RETROFLEXION PESSARY.

with glycerine pad, will be tolerated with less inconvenience than an ordinary Hodge. Even the same instrument differently shaped will sometimes make a great difference as regards the comfort with which it is worn.

Frequent resort to the semi-prone or knee-shoulder posture, injection of hot water, regulation of the bowels, rest at the menstrual epochs, and avoidance of all causes of excitement or fatigue, should still be observed.

Any granular degeneration of the cervical mucous membrane, or endrometritis, should be treated by appropriate remedies, so as to remove all sources of irritation. Tampons of cotton-wool saturated with glycerine, or with carbolized or iodized glycerine, may still be employed to lessen the bulk of the uterus.

The employment of skirt supporters or garment suspenders, the avoidance of tight-lacing, lifting heavy weights, or prolonged exertion, should be insisted upon, and every other precaution taken to aid the mechanical treatment.

Medical treatment should not be forgotten, but carried out conjointly with surgical aid.

In many of the cases of acute retroflexion associated with metritis, the administration of the liquor. hyd. perchlor. ʒj, pot. iod. gr. iij-v, tinct. nucis vom. ♏x, tinct. cinch. co. ♏xx, with inf. aur. co. or aqu. chlorof. proves very beneficial. In others a combination of the pot. bromid. gr. x–xx, with ext. ergot. liq. ♏xv–xx, and cinchona, serves to allay the nervous disturbance and reduce the bulk of the uterus. Iron, as a rule, should not be given, as it tends to increase the congestion of the uterus and produce constipation. But where the patient is very anæmic from the menorrhagia, and the uterus has been

restored to its proper position and the congestion diminished, some of the lighter forms, such as the acetate, citrate, phosphate, or tartrate may be given, or the arseniate, saccharated carbonate, iodide, or reduced iron, if preferred.

Local pain or discomfort may be relieved by means of morphia, morphia and atropine, conium, belladonna, or other form of suppository or pessary. A small enema of starch and laudanum often proves as efficacious as anything.

FIG. 28.—THOMAS'S MODIFICATION OF CUTTER'S PESSARY.

Posture should always first be tried. Dull heavy aching pain in the back or sacrum, with sense of dragging, bearing down, or other form of discomfort, may often be effectually relieved by resorting to the genu-pectoral, or semi-prone position. This especially applies to cases where distress is complained of after insertion of a Hodge's pessary.

Primary or congenital retroflexion is commonly associated with stenosis of the external os uteri. This in single women aggravates considerably the dysmenorrhœa, and in married patients conduces to the production of dyspareunia and sterility. Bilateral incision of the cervix is generally indicated, and should be performed in the manner described.

The treatment of the flexion will be similar to that suggested for the secondary form; posture, replacement, a Hodge's pessary, &c.

Cutter's Pessary for Retroflexion (fig. 28), as modified by Thomas, may sometimes be found of service in cases where the vagina is so relaxed that an ordinary Hodge cannot be retained, or where the posterior cul-de-sac is very shallow. The curved stem passes over the perineum, and is attached to a waistband. It is less dangerous than any of the forms of intra-uterine stems connected with external supports, but is still not free from risk, in that shocks are readily communicated to the fundus when the patient sits down, or from jolting in driving, &c.

Some care will be needed in teaching the patient how to insert it, so that the upper portion passes behind the cervix. It should be removed at bedtime and replaced in the morning.

After wearing one of these for a few weeks, the posterior cul-de-sac often becomes sufficiently stretched to allow of a Hodge being retained *in situ*.

Intra-Uterine Pessaries, or stems, will generally be required in cases of retroflexion, more especially of the congenital form, where the os is very small, the vaginal cervix so short, the posterior cul-de-sac so shallow, or the vagina so lax, that an ordinary Hodge's pessary cannot be retained, and the flexion persists, spite of all our efforts to the contrary.

A simple vulcanite or silver stem, or a self-retaining one, such as Wright's, or Chambers's modification of it, may be inserted, and thus convert a case of retroflexion into one of retroversion. If a Hodge's lever pessary be now introduced, the fundus will be carried upwards and

forwards. Both the flexion and version are thus overcome, without exposing the patient to unnecessary risk, as too often happens when the intra-uterine stem forms part of a vaginal or external pessary.

Numerous ingenious contrivances have been devised to overcome the difficulty often experienced of keeping the uterus straight and the fundus elevated. *Meadows's Vulcanite Stem and Support* (fig. 29) consists of an intra-uterine stem attached to a kind of Hodge's pessary. To insert it the stem can be drawn down in a line with the Hodge, and is fitted on to a long probe or sound, which guides the stem into the uterus. On withdrawal of the sound, the elastic band pulls the stem at right angles to the pessary, elevating and straightening the body of the uterus. The rounded extremity of the vaginal pessary is directed backwards towards the sacrum. The patient should be carefully watched whilst wearing it, lest mischief arise from undue pressure. To withdraw it the finger must be passed into the rounded extremity, and traction exerted downwards.

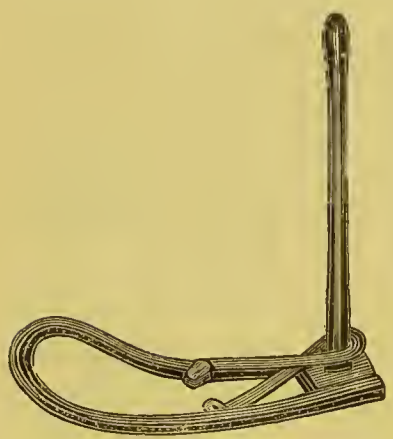

FIG. 29. – MEADOWS'S VULCANITE STEM AND SUPPORT.

GRANULAR DEGENERATION OF THE CERVIX UTERI.

This condition almost invariably complicates affections of the uterus where leucorrhœa is a prominent symptom. It may exist independently of other well-marked disease of the uterus and give rise to little or no inconvenience beyond the leucorrhœa. In other cases it induces such a condition of hyperæmia in the uterus, and reflex irritation, as to interfere materially with the patient's comfort and well-being.

It has been described as epithelial abrasion, granular ulcer, papillary or villous erosion of the cervix; but the term granular degeneration best describes the actual character of the affection.

The term 'ulceration' is still frequently employed to describe this granular degeneration, but there is no progressive ulceration or gradual destruction of tissue such as is met with in true ulceration, and therefore the term is not appropriate.

On getting the cervix well into view by means of a Fergusson's speculum, the surface is found to be bathed with a thick creamy pus. On mopping this away, the cervix will be seen to be intensely red, florid, granular, the surface being somewhat elevated above the normal level of the surrounding mucous membrane, having a villous appearance.

The disease may go on for an unlimited time if not properly treated, becoming worse as the congestion and

reflex irritation increases. Where, however, appropriate measures are adopted to improve the general health, alter the character of the surface affected, and remove any existing complications, a cure may safely be predicted. In long-standing cases treatment will need to be persevered with steadily for some time.

Treatment. — This will depend upon the severity, duration, complications, and state of health. In simple cases the mere employment of the syringe, with suitable injections of borax, alum, zinc, chloral, acetate of lead, &c., will often prove sufficient to relieve the condition, provided the general health be also attended to and all obvious causes conducing to keep up the irritation be removed.

Where the disease is of long standing it will generally be found to be secondary to some other antecedent condition, such as vaginitis, endometritis, displacement, &c. It is essential for success that any primary disease should be discovered and dealt with simultaneously. If vaginitis be present this must be properly treated, otherwise we shall in vain attempt to cure the granular degeneration so long as the exciting cause of its production remains. If endometritis exists, suitable means must be adopted to remove it.

If any displacement, such as retroversion, retroflexion, or prolapse be detected, a Hodge or other vaginal pessary should be fitted so as to relieve the tendency to congestion and remove the cervix from all influence of friction.

The action of the pessary may be still further assisted by means of abdominal and skirt supporters, which take off the pressure upon the lower abdomen of tightly-fitting or heavy clothing.

Rest in the horizontal position during menstruation, regulation of the bowels, avoidance of prolonged or undue exertion, or of too frequent intercourse if the patient be married, should all be insisted upon.

The general health must also be attended to, suitable tonics being prescribed, and the diet properly regulated.

Having attended to these preliminary points, we have now to consider the various methods of influencing the local condition of the cervix by means of vaginal injections, tampons, pessaries, applications of caustics, &c.

The employment of water, at a suitable temperature, to remove all secretions from the vagina, and thus favour a more healthy condition of the cervix, is absolutely essential for successful treatment.

This may be effected by means of an irrigator, syphon, douche, syringe, or bath.

The irrigator consists of a suitable vessel, near the bottom of which is inserted a flexible tube, provided with a stopcock, so as to control the delivery of the fluid. To the end of the tube a vaginal nozzle is attached.

The vessel having been filled with water, is placed at a convenient height above the patient, either suspended from a nail or standing on the top of a chest of drawers. The stopcock being turned, the fluid is allowed to flow into the vagina in a continuous stream.

The syphon douche is arranged by filling a jug or can with water at the desired temperature. A long india-rubber tube, stiffened by means of gutta percha at the bend, so as to prevent it collapsing, provided with a hollow leaden ball at one end and a vaginal delivery tube at the other, is then immersed in the fluid, the stopcock being turned so as .allow the fluid to enter. Before removing

the vaginal end of the tube from the jug, the stopcock is again turned so as to prevent the water running out. On now opening the stopcock a continuous stream of water can be made to flow into the vagina until the vessel be emptied, or the leaded end of the tube being placed in the vessel and the stopcock opened, the fluid may be made to enter by simply drawing the thumb and forefinger along the tubing from the rim of the vessel downwards.

The great advantage of employing the irrigator or syphon douche is that the patient can administer it herself whilst lying in the dorsal position. The hips being placed over a bed-bath, or bed-pan, to which a flexible tube is

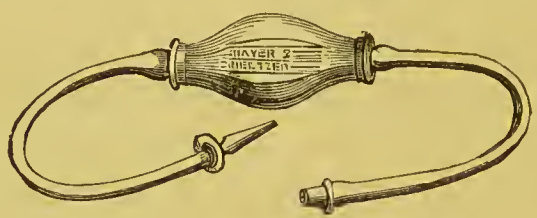

Fig. 30.—Higginson's Syringe.

attached to carry the fluid away into a foot-pan or other vessel on the floor, the vaginal tube is inserted a short distance into the passage, the stopcock turned and the water allowed to flow.

Syringes of various kinds are employed. Those made of indiarubber are the most suitable; pewter or glass should never be used, the latter being very liable to break and so cause accidents.

Ingram's patent seamless syringe is one of the most convenient forms. Higginson's or Kennedy's is also very useful.

The vaginal tube should be adjusted so as to lessen the force with which the fluid is injected, and prevent the

possibility of the bone nozzle being inserted in the cervix.

Instances of severe uterine colic, intense agony, peritonitis, and even death from the employment of vaginal injections have been recorded. In some cases this may possibly be explained by the tube being inserted into the patulous cervix of a retroverted uterus. We cannot therefore be too careful in explaining to the patient how to use the syringe properly.

In employing the syringe the patient may sit over a bidet, or ordinary chamber utensil, the water being placed in a basin standing on a chair or on the floor by her side, as most convenient to her.

In some instances the syringe may be used whilst the patient is sitting in her hip-bath, or the bath speculum may be inserted in the vagina so as to allow the water to gain ready access to the cervix.

For ordinary purposes of ablution the syringe answers perfectly well, but where we need the stimulating, sedative, or alterative effect of long-continued applications of cold or hot water, the irrigator, syphon douche, or employment of the syringe by a nurse, becomes requisite.

After the employment of cold, tepid, or hot water to remove any secretions from the vagina and promote a healthier action of the mucous membrane, the best way of applying any medicated solution is for the patient to recline on the back, with the hips slightly elevated, so as to allow the retention of the fluid in the vaginal cul-de-sac. A small syringe holding two to four ounces having previously been filled with the lotion, is then used to inject it into the vagina, the patient retaining it for some five or ten minutes, when, on sitting up, the fluid

runs out into any suitable receptacle. This is a far more efficacious method of applying injections than using them very dilute merely to wash the surface momentarily.

As emollient injections the following will be found very useful, especially if the vaginal secretion be much increased, and by its acridity tends to keep up the granular erosion of the cervix :—Sodæ biboratis ʒji–ij ; glycer. boracis ℥ss.–j ; sodæ bicarb. ʒij–iv ; plumbi acetatis ʒj–ij ; liq. plumbi subacet. ʒij–iv ; acid carbol. ʒjss.–ij, dissolved in ℥viii of water.

If a more astringent injection be requisite, alum j–iv ; sulphate of zinc ʒss.–ij may be employed.

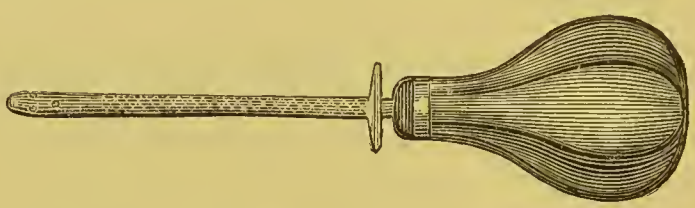

Fig. 31.—Syringe for Injecting Lotion.

The addition of an ounce or two of glycerine to the ℥viii, and aqu. rosæ in place of plain water makes a more soothing and at the same time more elegant injection.

One or two tablespoonfuls of either of these solutions added to half a pint of warm water may be used after the vagina has been well washed out with hot water.

Astringents may also be applied to the cervix by means of tampons soaked in glycerine, in which borax, tannin, acetate of lead, carbolic acid, &c., are dissolved. It is well to first saturate the plug with pure glycerine, squeezing it slightly, so as to get rid of any excess, then dip the face of it in the medicated glycerine, and insert it in the vagina, close up to the cervix uteri. This may be done

by the aid of a speculum, or by the patient herself, either through Barnes's tampon introducer, employed for this purpose, or by merely passing the plug up the vagina as far as the finger will reach. Glycerine is an excellent solvent for the drugs mentioned, thirty to sixty grains to the ounce, one-half the strength of the pharmacopœial preparations being sufficient. The glycerine itself acts most beneficially in depleting the cervix by producing a copious watery discharge.

Another method of applying agents to the cervix is by means of suppositories or pessaries. These may be made either with cocoa butter; one part of powdered gelatine moistened with three parts of glycerine gently heated and poured into moulds; or one part of pure paraffin to four of vaseline. As astringents, alum gr. x–xv; iron alum gr. x–xv; alum and catechu gr. x–xv of each; tannin gr. iij–v; acetate of lead gr. iv–vj; matico gr. x; persulphate of iron gr. iv–vj, incorporated in a small conical pessary, may be employed.

As sedatives morphia gr. ss, with atropine gr. $\frac{1}{20}$; chloral. hydrat. gr. v–x; extract. opii gr. j–ij; morphia gr. $\frac{1}{3}$; extract. belladonnæ gr. j; extract. conii gr. v–x, may be employed either alone or in conjunction with an astringent.

Zinci oxidi gr. x–xv; bismuth oxidi gr. x–xv; borax x–xv; unguent. hydrarg. gr. x–xx; plumbi acetat. gr. v–vj; iodoform gr. ss.–ij, also form useful applications in cases of granular erosion.

A single pessary is inserted into the vagina by the patient herself on retiring to rest, and allowed to dissolve *in situ*, the syringe being employed on rising in the morning to wash away the *débris*. It is essential

that the patient remain lying down during their employment.

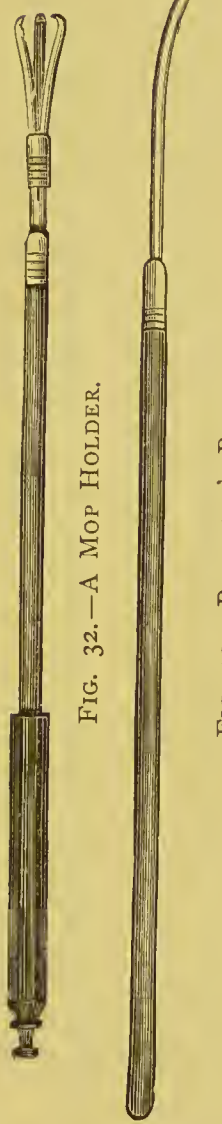

Fig. 32.—A Mop Holder.

Fig. 33.—Playfair's Probe.

Another method recently advocated, and very useful in some cases, is the following:—

After making an application to the cervix of whatever may be considered requisite, the surface is wiped dry, and two or three drachms of powdered borax, boric acid, bismuth, oxide of zinc, or any other agent selected, are inserted into the speculum, a dry tampon passed, and the speculum withdrawn. The tampon should not be removed for at least twenty-four hours, when the syringe may be employed to cleanse away the *débris*.

Mode of applying Caustics to the Cervical Canal.—Having enlarged the external os if necessary, punctured the cervix and scarified to produce local depletion if requisite, and removed the plug of inspissated mucus generally found blocking up the cervical canal, we have now to consider how best to apply our remedies.

These may be employed either in a liquid form, or in the form of crayons or pencils. The more usual and probably the most efficacious method is in the form of strong solutions.

A *Playfair's Probe* (fig. 33), the terminal three inches of

which is made of aluminium, so as to resist the effect of acids, is first coated with a thin layer of cotton-wool, the probe being roughened, and having a slight bulb at the terminal extremity so as to prevent the cotton slipping off. Absorbent cotton or jewellers' cotton should be employed, as, being chemically cleaned, it takes up fluid more readily, and the fibre being long and fine the cotton is less likely to become detached.

A thin layer, triangular in shape, about three inches long, is held lightly between the finger and thumb of the left hand, the point of the probe is placed at one angle of this, and then twisted round and round so as to dispose the cotton firmly and evenly over the probe. This requires some little practice to accomplish it. Having placed the patient in the left lateral position, ascertained the direction of the canal by means of the uterine sound, and passed a Fergusson's speculum, the probe is then dipped for about two inches in the solution we intend to employ, any superfluity being carefully squeezed out against the neck of the bottle.

The os being well in view, the probe is then passed within as far as the internal os, and allowed to remain for a few seconds, or even for a minute, until the cervix contracts upon the probe and thus secures the complete action of the remedy. The probe is then gently rotated and gradually withdrawn, any excess that may have run down into the vaginal cul-de-sac is carefully mopped up, a plug of cotton-wool, with string attached, saturated in glycerine, is then passed up to the cervix, held there by a sound or other instrument until the speculum is withdrawn, when the operation is completed. If this treatment be resorted to in the consulting-room the patient

should as a rule drive home and remain quiet for the rest of the day. The plug may be removed at bed-time, when the syringe is employed for vaginal injection, or left until the following morning.

If nitric acid be employed it is well to inject a little saturated solution of carbonate of soda into the vaginal cul-de-sac, so as to preclude any of the acid running down and irritating the vagina; any excess of the acid must also be carefully neutralized by the same agent.

In every case the probe should be accurately curved to correspond with the direction of the cervical canal; no force should be employed, lest the tissue of the cervix be injured. To remove the cotton-wool from the probe, with a pair of scissors cut along the convexity of the curve, then dip the end in water and again use the scissors until all the wool is displaced.

Sims devised an instrument by means of which a roll of cotton soaked in any medicated solution may be left within the cervical canal by sliding it off on withdrawal of the probe, similar in construction to Barnes's tent introducer.

We can thus leave the agent employed longer in contact with the diseased surface, and so ensure a more thorough and lasting application of it. A string attached to the cotton enables the patient to withdraw it in the event of the uterine contractions not expelling it within the course of a few hours.

The same object may be attained, if the operator be an adept, by rolling the cotton lightly on a smooth probe, and reversing this latter as soon as the canal contracts upon it, so as to loosen the hold of the cotton and allow it to remain within the cervix.

The agents most useful in modifying the condition of the cervical canal when affected by endometritis are :— Carbolic acid, kept liquid by adding ʒj of glycerine to ℥j of the pure crystallized acid, liquefied by heat (a few grains of camphor added to this prevents solidification again, even at a freezing temperature); carbolic acid, liquefied as above, with equal parts of linimentum or liquor iodi; liquor ferri perchlorid. fortior, alone or diluted with an equal quantity of glycerine; acid. nitric. fortior; nitrate of silver solution ʒj ad ʒj aquam; linimentum iodi; glacial acetic acid; acid nitrate of mercury.

Frequency of Application.—As a general rule it will be necessary to repeat the application of most of the agents employed about once a week, changing them from time to time. It is always well to begin with carbolic acid, as being less powerful than some of the others mentioned, and less likely to produce contraction or occlusion of the os. Moreover it exerts a marked local anæsthetic effect, and so proves less painful to the patient. It is an extremely useful agent, and in the majority of simple cases will alone prove sufficient to effect a cure. It may be applied within a few days of the cessation of the menstrual period, then again within a week, and a third time a week after, thus leaving a clear interval of ten days before the expected appearance of the next catamenia.

Iodine, whether in the form of liquor iodi (1 in 24), linimentum iodi (1 in 9), iodized phenol (iodine ℥ss, crystallized carbolic acid ℥ij, water ʒij = 1 in 5), or linimentum iodi and carbolic acid in equal parts, is a most valuable application. It is not only a local stimulant, but also a powerful alterative, stimulating the absorbents, and being

taken up into the general circulation and so producing a double action. Patients will often detect the taste of iodine within a very short time of its application. It has the advantage also of not losing its efficacy by frequent employment, and acts promptly in causing contraction of all the blood-vessels within range of its influence. If carefully used, the combination of the linimentum iodi with liquefied carbolic acid is the most efficacious, and may be safely employed.

Nitric Acid should never be applied to the cervical canal until other remedies have first been employed to test the toleration of caustics, as it sometimes produces a considerable amount of pain with reflex nervous symptoms which may last for some days. It should be reserved for very severe and intractable cases, where other remedies have been tried and failed, and then only applied once shortly after a period, other agents being then resorted to in the meanwhile. If necessary the acid may again be used after the next period, and so on, once a month, for two or three months. It is well to state that the acid causes destruction of tissue and may lead to contraction of the cervix or occlusion of the os uteri. I have met with instances where the retention of the menstrual fluid—hæmatometra—has ensued, and an operation been requisite to restore the patency of the os uteri.

In appropriate cases, when properly applied and not repeated too frequently, it is unquestionably a very useful application, but should never be employed by those who are not thoroughly familiar with the art of gynecology.

Liquor Ferri Perchloridi fortior is a very powerful styptic, and in cases where the endometrium is seen to be

in a state of extensive granular degeneration, may be applied with benefit, but not too often. It is well to inject a little saturated solution of carbonate of soda into the cul-de-sac of the vagina previously to applying the iron, so as to neutralize any excess that may run down, as it has a very irritating effect upon the vagina.

The acid nitrate of mercury offers no advantages over the nitric acid, and is liable to produce salivation if the patient be at all susceptible.

Glacial acetic acid has been recommended as a painless application in these cases.

Crayons or pencils made of the following substances have been recommended for insertion into the cervical canal either by means of a porte-crayon, Barnes's tube, or by the aid of a speculum and forceps:—

Nitrate of silver alone, or reduced by admixture with equal parts of nitrate of potash, fused into moulds. Sulphate of zinc fused, so as to make zinc points. Tannin, one drop of glycerine added to ten grains of tannin, rolled out into a crayon. Iodoform gr. xv, pulv. acaciæ and mucilage q.s.

In special cases crayons may be indicated, but they are far less generally useful than the liquid caustics.

The application of the solid nitrate of silver, either by passing the caustic in a holder up the canal, or by leaving a small piece to dissolve there, is not to be recommended; the former method is quite inefficient, the latter not unattended with danger, and in any case liable to set up considerable irritation as the dissolved caustic runs down into the vagina. If the case be really one of chronic cervical endometritis, such as we are now considering, the

only applications at all likely to be brought into contact with any extent of the lining membrane of the cervix are those in a fluid form, applied by means of a Playfair's probe coated with cotton-wool, sufficiently bulky to distend the canal somewhat and to secure a thorough application of the remedy.

ILLUSTRATIVE CASES.

I.—STERILITY.

THE following cases have been selected as illustrating fairly the causes and treatment of sterility. As the method of dealing with the several conditions has already been given in detail, no attempt has been made to enter minutely into particulars. It will be seen that in some the barrier to maternity was very slight, and easily overcome when a correct diagnosis had been arrived at. In others, simple treatment proving insufficient, recourse to more serious measures had to be adopted. Each case must be treated upon its merits; no general rule is of universal application where sterility is concerned.

In our student days we are taught the science of our profession; later on we learn the practice, but not until many years have passed do we attain to the art of our profession, which enables us to cope successfully with the difficult problems so often presented to us.

If one could follow up the history of every case that has submitted to treatment the number of cures would be far greater than appears in one's case books.

It frequently happens that some patient remains under treatment for a short time, and then disappears, without anything further being heard of her, until some years afterwards, when she presents herself again for some present ailment, and informs you that since you last saw her she has had several children. She either intended to write and tell you, or meant to call and show you the baby, but never did so. It is for this reason "case-book statistics" are utterly unreliable, and (apparently) unsuccessful cases have not therefore been given.

RETROVERSION—GRANULAR CERVIX—STERILITY—TREATMENT—PREGNANCY.

In July 1875 a fine, well-made woman, aged twenty-eight, who had been married over a twelvemonth, consulted me, as she was very disappointed that she had no prospect of becoming a mother. Catamenia commenced at fourteen, and had always been regular, unattended by pain. On examination in the usual position on the couch—on the left side, the uterus was found to be slightly retroverted, not markedly so, but on placing the patient in the dorsal decubitus, the cervix was found high up behind the pubes and the fundus uteri on a much lower level.

The cervix uteri was fairly normal in size and position; the canal being somewhat granular, and giving exit to a mucous discharge, more than usually found from a healthy uterus.

Beyond suffering from constipation the general health was fairly good, and nothing further could be detected locally calculated to prevent impregnation.

Carbolic acid was applied for about one inch to the cervical canal, a small vulcanite Hodge's pessary inserted, and an injection of borax ordered.

The constipation was relieved by attending to the dietary, restricting the amount of tea, and the prescription of a pill containing aloes, belladonna and rhubarb.

The following week the application to the cervical canal was repeated, and once subsequently. Within one month from commencing treatment impregnation occurred, and she was safely delivered at full term of a living child.

It is fair to conclude that the success here was due to treatment, that it was a *propter* and not a *post* hoc. Since this the patient has had two other children, but the interval between the first and second was over three years, and it was not until a Hodge was reinserted and some few applications to the cervix made that impregnation again took place.

RETROVERSION—PROLAPSE OF LEFT OVARY—STERILITY FOUR YEARS.

A tall, delicate-looking young woman, aged twenty-two, married four years, sterile, consulted me in March, 1876, complaining of pain in her left leg on walking, frequent desire to micturate, and severe dyspareunia. On examination the uterus was found to be retroverted, the left ovary enlarged, prolapsed and tender, the cervix intensely granular.

The uterus was replaced by the aid of the sound, a small Hodge inserted, and nitric acid applied carefully to the cervix; the douche and glycerine tampons being regularly employed. The bladder irritation rapidly subsided, and the pain on walking lessened. Shortly after this she became pregnant, but miscarried before the second month.

Treatment was persevered with, and the advisability of having the ovary removed suggested, but this the husband would not consent to. She became pregnant, and again miscarried about the second month.

MENORRHAGIA—ENDOMETRITIS—STERILITY.

The following case illustrates the importance of persevering patiently with treatment both local and general :—

The patient was twenty-eight years old, married five years, and had never been pregnant. The catamenia commenced at fifteen, and "for several years past had been too often and too long," recurring every fortnight, and lasting seven to ten days. She suffered from leucorrhœa, and was much troubled by frequent desire to micturate. She owned to being very irritable and very depressed. When first seen, in April, 1876, the uterus was found to be very bulky, anteflected, the cervix intensely granular, the anterior lip considerably enlarged.

Depletion by means of puncturing the cervix freely was resorted to, nitric acid applied to the os uteri, glycerine tampons

inserted every night, the hot douche employed twice daily, and every means taken to improve the tone of her general health.

Within a few months the period became much less profuse and prolonged, the interval gradually increasing. She was seen from time to time, and the question of wearing a stem raised, but as the patient could not remain in town it was deemed inexpedient. Applications to the cervical canal of nitric or carbolic acid were made when deemed requisite.

Within fifteen months of being first seen she became pregnant, and I attended her in her confinement in May, 1878. Both mother and child doing well.

RETROFLEXION—HODGE—STEM—PREGNANCY.

In July, 1878, a thin, delicate patient, aged thirty-two, married eighteen months, one of the four surviving members of a family of thirteen, consulted me for dysmenorrhœa and sterility.

On examination the uterus was found to be retroflected, the cervix small. The uterus was redressed by means of the sound, and a small vulcanite Hodge inserted. Means were taken to improve the general health, and the cervical canal was dilated with graduated bougies.

Finding that she bore treatment fairly well an intra-uterine stem was inserted, and the patient carefully watched. After passing through two periods with little or no discomfort the stem was removed, the Hodge being allowed to remain in. Shortly afterwards she became pregnant, and was safely delivered of a little girl in due course.

DYSMENORRHŒA — STERILITY — ANTEFLEXION—ENDOMETRITIS—TREATMENT—PREGNANCY.

In October, 1878, a medical man brought his wife to consult me, as she suffered intensely at her periods, and the ordinary remedies had been tried in vain. Her age was twenty-two,

married one year. The catamenia commenced at fourteen, and had always been painful, but worse since marriage. They lasted generally about five days, pain being worst the first day.

On examination the uterus was found to be anteflected, the sound passing with pain and difficulty. There was much tenderness on pressure, and general local hyperæsthesia.

The cervix was larger than normal, the os patulous, the canal intensely granular, giving exit to much mucus discharge.

A mixture of bromide and iodide of potassium was prescribed, the hot douche and glycerine tampon employed, and, when the parts were less sensitive, application of carbolic acid from time to time resorted to. Graduated bougies were passed occasionally to dilate and straighten the cervical canal.

Her general health slowly improved, the periods became less painful, the discharge lessened materially, and she was enabled to get about without much discomfort. She spent several months abroad, during which time treatment was intermitted. She got a severe chill during a menstrual period, and the symptoms recurred as bad as ever, the pain coming on in paroxysms, as if neuralgic, preventing her sleeping, and causing great depression of spirits.

Arsenic and iron in the form of pill were prescribed, and local treatment again resorted to at long intervals.

It was not, however, until nearly two years had elapsed from the commencement of treatment that the inflammatory condition subsided entirely. She then became pregnant, and was safely delivered in May, 1881.

STERILITY — AMENORRHŒA — SMALL UNDEVELOPED UTERUS—CONICAL CERVIX—PIN-HOLE OS—DIVISION OF CERVIX—PREGNANCY.

A delicate, chlorotic-looking girl, aged twenty-three, married one year, consulted me in May, 1881. First catamenia at sixteen. Never regular; very scanty, only lasting about a day, and recurring every three or four months; not at all since her marriage.

Family history fairly good. Had scarlet fever at fourteen ; health impaired for next two years.

A very anæmic patient—vegetarian and teetotaler.

On examination the sexual organs were found to be very feebly developed, the uterus excessively small, the cervix conical, with a pinhole os uteri. Attention was first directed to improving the general health by a better dietary, warm clothing, and proper exercise. Tonics : Quinine, iron and strychnia. Hot douching locally.

Later on the cervix was divided slightly, and the calibre of the canal enlarged by graduated bougies.

The catamenia returned fairly regularly after a few months treatment, but it was another twelvemonth before she became pregnant. She was safely delivered of a living female child in March, 1883.

DYSMENORRHŒA AND STERILITY, CHLOROTIC ANÆMIA—ANTEFLEXION OF UTERUS, RELIEVED BY STEM AND DILATATION —PREGNANCY.

When first seen in 1881 the patient had been married nearly four years. She looked more like a delicate growing girl of seventeen than a wife aged twenty-six ; she was chlorotic, had severe pain in her chest if she walked fast or went hurriedly upstairs. "The pain just as the period came on was dreadful," and she was troubled much with leucorrhœa. The uterus was small, slightly anteflected, mobile. Regarding the dysmenorrhœa as being more due to the constitutional than the local condition, the importance of improving the state of the general health was suggested before attempting any local treatment. A mixture of quinine, iron and strychnia was prescribed, together with an injection of borax and carbolic acid.

She was sent to Buxton for a change, carefully dieted, and every effort made to improve her condition.

When next seen, in 1882, she had greatly improved in health, and reported herself as feeling very much better. The monthly

pain was now bearable, and the leucorrhœa had diminished in quantity, but was not cured.

Later on local treatment was commenced by passing graduated bougies to straighten out the cervical canal and dilate it. Carbolic acid was applied from time to time, and an intra-uterine stem was worn for about six weeks.

Her general health, although improved, was far from satisfactory, but after a visit to Tunbridge Wells and Folkestone, where she stayed with friends and was well looked after, she returned home and became pregnant almost immediately. She was confined in July, 1884.

DYSMENORRHŒA—STERILITY FIVE YEARS—ANTEFLEXION—CONICAL CERVIX—DIVISION—STEM—PREGNANCY.

A fine well-made woman, aged twenty four, married five years, consulted me in January, 1883, complaining of dragging pain in both groins and across the back. She suffered much at her periods and was troubled with leucorrhœa. Her general health was good.

On examination the uterus was found to be somewhat anteflected. The cervix conical and os uteri pinhole. The sound passed upwards and forwards causing pain at the internal os.

The advisability of division of the cervix was suggested ; this was done, and the canal dilated by means of graduated bougies.

The dysmenorrhœa ceased from this time.

In January, 1884, as the sterility continued, an intra-uterine stem was inserted and worn for three months. Very shortly after its removal impregnation took place, and pregnancy occurred.

VAGINISMUS—DYSPAREUNIA—STERILITY $3\frac{1}{2}$ YEARS.

A clergyman's wife, aged twenty-seven, married two years, consulted me in February, 1883. The distress attending any attempts at sexual relations was so great that the patient practi-

cally remained a virgin. She was highly neurotic, and it was with great difficulty that a satisfactory examination could be made. The catamenia were regular, and lasted generally six or seven days. The tone of the general health was improved, and the bowels carefully regulated.

She was only seen twice. Later on, as she did not conceive, the cervical canal was dilated by the passage of bougies and carbolic acid applied to the cervical canal.

Shortly after this she became pregnant, and was delivered at full time of a healthy living child in April, 1885.

MENORRHAGIA—STERILITY—DILATATION OF CERVIX—CURETTING —PREGNANCY AFTER THIRTEEN YEARS' MARRIAGE.

A stout, florid, masculine-looking woman, aged thirty-six, married thirteen years, was brought to me in 1883 suffering from menorrhagia. Injection of the uterine cavity with tinct. ferri perchl. had been resorted to previously to my seeing her, which checked the hæmorrhage for a time, but sent up the temperature to 105° F., and was followed by symptoms of septicæmia.

On going carefully into the history of this case, she stated that she had passed a cast of the womb two years ago, since which time the catamenia had been very irregular, occasional attacks of flooding coming on. Whether this was a dysmenorrhœal membrane it was difficult to determine, but as she had been married then nine years and had never conceived, it could not be regarded as a miscarriage.

On examination the uterus was found to be excessively bulky, the sound passing 3½ inches and provoking hæmorrhage. The cervix was normal in appearance. Dilatation of the cervical canal was effected by means of laminaria tents, and the uterine cavity was curetted. A quantity of soft thickened endometrium was removed, the uterus syringed out with hot water, and then iron applied to check further hæmorrhage.

She left town at the end of a week, her health improved

materially, and the periods became quite regular. She became pregnant within six months, and was safely delivered in August, 1884.

ANTEFLEXION—DILATATION—PREGNANCY.

In July, 1884, a patient, aged thirty-nine, married nearly ten years, consulted me as to why she did not become pregnant. The catamenia commenced at 12½, were regular every twenty-five days, and lasted four days' without pain or inconvenience. She complained of nothing, and did not wish any medicine prescribed.

On examination the uterus was found to be anteflected, somewhat congested, otherwise normal. The sound was passed upward and forward, but nothing further done. The question of wearing a stem was suggested, but not acceded to.

She presented herself once again shortly after her first visit, when a No. 8 metal bougie was passed. Shortly after this she became pregnant, and was delivered safely at term early in June, 1885. This case is purposely selected as illustrating how slight is the barrier to maternity in some instances.

DYSMENORRHŒA—STERILITY—CONICAL CERVIX—DIVISION—PREGNANCY.

In March, 1885, a Surgeon-Major brought his wife to me on her return from India. She was twenty-one years old, married two years, and complained much of pain in the left iliac fossa, extending through to the back, especially on exertion, when she experienced a dragging pain in the left leg. She had habitually numbness of the left little finger, and pain as if a nail were being driven into the bridge of her nose, together with pains in the lower abdomen just before each menstrual period.

On examination the uterus was found to be fairly normal in size and position; the sound passing 2½ inches, showing the uterus to be somewhat anteflected, but not markedly so.

The cervix was conical, and the os uteri very small.

No enlargement or undue tenderness of either ovary could be detected on conjoined manipulation.

In April the posterior lip of the cervix was divided in two places—not heroically—and the cervical canal was dilated by means of graduated bougies. The catamenia returned twice after the operation without any pain or inconvenience.

She became pregnant in July, and was safely delivered of a son in April, 1886. Her general health had greatly improved, and she was better in every respect.

OBESITY—SLIGHT ENDOMETRITIS—STERILITY—TREATMENT—PREGNANCY.

A tall, stout, but active, intelligent woman, aged twenty-seven, married over two years, came to me in September, 1885, to know if anything could be done so that she might have a child. The catamenia commenced at fourteen, but had always been irregular and scanty, recurring only every three or four months, and occasionally six months. She had got much stouter since her marriage. On examination, the uterus was found to be fairly normal in size and position; mobile. The discharge from the vagina was somewhat acrid and increased in quantity.

In March, 1886, the patient came up to town for treatment. The vaginal cul-de-sac was swabbed out thoroughly with carbolic acid. The os uteri was nicked in several places so as to allow of a free exit to the secretions. Iodized phenol was applied to the cervical canal on some few occasions, and then a galvanic stem was inserted.

The patient was carefully dieted, and, on her return home, the importance of regular daily exercise insisted upon. A mixture of quinine, iron, and strychnia was prescribed, and an injection of alum and borax employed.

The catamenia became more regular as the patient improved in health. She lost two stone within the next few months, and felt stronger and better than she ever remembered to have been.

The catamenia ceased in July, 1886, and she was safely delivered in April, 1887.

RETROVERSION—CONICAL CERVIX—PINHOLE OS UTERI—DYSMENORRHŒA—STERILITY—TREATMENT—PREGNANCY.

In October, 1885, a thin, delicate woman, aged thirty-five, married fifteen months, was brought to me by her medical man to see if I could suggest anything to relieve the intense headaches she experienced at the monthly period.

On inquiry I found she suffered much from dysmenorrhœa, was very low-spirited, had frequent crying fits, was very constipated, and markedly emaciated. On examination, the uterus was retroverted, the cervix conical, the os uteri pinhole, quite sufficient to account for the dysmenorrhœa and the headaches. Division of the cervix and insertion of a pessary was suggested as being most likely to relieve her symptoms. This was done after her next period. Some little peritonitis occurred, which retarded her recovery.

In March, 1886, she reported herself as being much better in many ways. The pain at her period and the headaches were much less, but still present. Her general health had improved, and she had gained flesh. The uterus was much more normal in position, but its mobility was impaired, evidently from inflammatory deposit following the operation. Some few months later she had recovered sufficiently to become pregnant, and was safely delivered at term in February, 1887, of a living child.

SMALL, ILL-DEVELOPED UTERUS—STERILITY—PREGNANCY.

In July, 1886, a highly neurotic, garrulous little lady, who had been doctoring nearly the whole two years of her married life, consulted me as to the possibility of her having a son, who would be heir to a large property. She was twenty-nine years of age; the family history fairly good. The catamenia appeared at

twelve, but were scanty and pale in colour, although fairly regular as to their recurrence at the present time.

On examination, an exceedingly small and ill-developed uterus was detected, the uterine sound passing with pain and difficulty upward and forward.

A chalybeate tonic, with quinine and strychnia was prescribed, and the employment of the hot douche indicated. The patient was far too restless to suggest the advisability of her wearing a stem. Graduated bougies were passed from time to time, and later on iodine applied to the cervical canal.

Her general health gradually improved. The catamenia ceased early in March, 1887, and the long-looked-for son and heir was duly announced as having arrived in December of the same year.

DYSPEPSIA—EMACIATION—STERILITY EIGHT YEARS CURED BY ATTENTION TO GENERAL HEALTH.

In August, 1887, a miserable, half-starved-looking young woman, aged thirty-three, complaining of pain all over the abdomen, severe indigestion, pyrosis, constipation, &c., consulted me for her general health. She stated that she had been married seven years, and had never been unwell more than three or four times in a year. She had been kept for two months at a time on nothing but milk and rice, and even now it took her an hour and a half to eat a cupful of bread and milk. She had no molars to masticate with, and was afraid to eat anything solid on account of the severe pain induced. The uterus was excessively small, the cervix slightly granular, otherwise nothing abnormal detected. The chest and heart sounds were normal in character, the latter feeble; the pulse 60; circumference of waist eighteen inches. The patient was carefully dieted, peptonized food administered, and everything possible done to improve her condition. At this time her weight was under seven stone. Beyond a single application of carbolic acid to the cervix no local treatment was attempted. Her general health gradually improved; she put on

flesh, and was able to take gentle exercise. The catamenia became more regular and more natural. They ceased about the middle of October, 1888, and July 13, 1889, she was safely delivered of a little girl.

Had it not been for the one solitary application to the cervix when first seen, nearly two years before her confinement, and this more as a matter of routine, the case could have been reported as one where success was due entirely to constitutional means.

ENDOMETRITIS—DYSMENORRHŒA—TREATMENT—PREGNANCY.

When first seen, in August, 1889, the patient, aged twenty-six, married nearly a year, was writhing in agony, due to the advent of the catamenia. I was told this agony lasted on and off for four days, and recurred monthly, some periods being much worse than others, but none free from pain. Some few days afterwards, on examination, the uterus was found to be bulky, somewhat tender to the touch ; the cervical canal very granular and giving exit to thick mucous discharge.

Graduated bougies were employed, and the canal treated with carbolic acid and iodized phenol from time to time, the hot douche, glycerine tampons and other local means being also resorted to. Tonics were prescribed, and the general health attended to.

The next few periods were passed with very little inconvenience. They appeared for the last time early in January, and when last seen she was pregnant about six months. Sickness was very troublesome for the first few months.

II.—ACQUIRED STERILITY.

This term is employed to indicate those cases where pregnancy occurs, generally within the first year of married life, and the patients are thereafter sterile, no second pregnancy occurring unless treatment be adopted.

Great discrimination will need to be exercised in the selection of cases for treatment. Where there has been a history of peritonitis, or severe pelvic cellulitis, following labour, we should be very careful not to set up any fresh inflammatory attack by injudicious, or intemperate treatment.

If the mobility of the uterus be seriously impaired by surrounding deposit, or the adhesions are so dense that the presumption is in favour of the fimbriated extremities of the Fallopian tubes being involved, no local applications to the cervix, or insertion of pessaries, is likely to prove of service, and we shall do wisely in abstaining from any active treatment. Time alone, or judicious attention to the state of the general health, may assist the pelvic organs in recovering their normal condition.

In some delicate, anæmic patients the mere effort of reproduction seems to exhaust all further capacity for a repetition of the process, and no treatment proves of any avail.

Constitutional measures may be tried to improve the tone of the general health. Chalybeate tonics prescribed—the hot douche employed, and if the case be deemed suitable, a galvanic stem inserted.

A few typical cases of acquired sterility, with the treatment employed, are here given. They could be multiplied indefinitely, but would serve no useful purpose.

ENDOMETRITIS—TREATMENT—PREGNANCY.

A fine, well-made woman, aged thirty-two, married nine years, mother of one child, aged eight years, consulted me in February, 1885, complaining of faintness, headache, sickness, feeling of suffocation, languor, and other symptoms.

The catamenia were regular, lasting four or five days, painful. She was troubled much with leucorrhœa. Her general health was very indifferent.

On examination, the uterus was found to be excessively bulky, tender; the cervix granular, the vagina bathed with a copious milky discharge.

She came up for treatment a few months later. Depletion was first employed, and when the uterus was less tender, applications of carbolic acid and iodized phenol were made to the cervical canal. The hot douche and glycerine tampons were persevered in, and every effort made to improve the tone of her general health.

The first two menstrual periods, following treatment, were more profuse than usual, but she was free from headache.

In January, 1886, she reported herself, as she suffered so much from nausea. There had been no appearance of any catamenia since the middle of July, and then only very slightly. She was evidently pregnant, and was safely delivered of a son in April. Since then she has had another child. When last seen in July, 1890, she was quite well, and had enjoyed life more during the last few years than she had done since her marriage.

RETROVERSION—PREGNANCY.

This lady, aged twenty-five, married five years, mother of one child, three and a half years, consulted me in April, 1887, stating

that she had never been well since her confinement. She suffered much from backache, bearing down, obstinate constipation, feeling of distension in the abdomen, breathlessness on going upstairs, and other symptoms. She was very disappointed that she had no more children.

On examination the uterus was found to be bulky, rather tender, retroverted with slight tendency to flexion, mobile. The cervix was granular. The sound was passed and the uterus redressed, a small vulcanite Hodge being inserted to keep the uterus in position. Carbolic acid was applied to the cervix, and the usual routine treatment carried out, without confining the patient to bed or to the house for a single day. The Hodge was subsequently changed for a ring pessary, as the former caused some inconvenience.

With appropriate tonics and local treatment her general health improved rapidly.

The ring was retained for four months, and then removed, as the uterus remained in a normal position. She became pregnant immediately after this. As there was a tendency for the uterus to become again retroverted, the ring was re-inserted when she was about two months advanced, and worn until the uterus had risen out of the pelvis. She was safely delivered early in June, 1888.

ENDOMETRITIS—TREATMENT—RECOVERY.

The patient, aged twenty-three, married four years, mother of one child, two and a half years ago, since dead, consulted me in July, 1877, complaining of scanty and painful menstruation, persistent vaginal discharge, frequency of micturition, and inability to walk without discomfort.

Her general health was much impaired, and her spirits very low. She was very anxious to have children, and had already undergone much treatment. The catamenia were regular, but scanty and always painful, the pain being worst the day before and the first day of the period.

On examination, the uterus was found to be bulky, tender,

somewhat anteflected, the cervical canal granular, the vagina bathed with leucorrhœa. The uterine sound was passed with pain and difficulty upward and forward. Carbolic acid was applied one inch to the cervical canal. Hot douches, glycerine tampons, occasional applications, attention to the general health, a tonic of quinine and iron with strychnia, and other suitable means soon altered the state of affairs, and within a few months she again became pregnant, and was safely delivered of a living child in September, 1878.

CHRONIC ENDOMETRITIS—VAGINISMUS—TREATMENT—PREGNANCY.

A highly neurotic, delicate lady, aged thirty-three, married three years, mother of one child within the first year of married life, since dead, consulted me in May, 1888, being very anxious to have children. She told me that she suffered much at her periods, the pain coming on a week or ten days before, and lasting quite through the period, the breasts being exceedingly sensitive at these times. She had been under treatment, and had used glycerine tampons regularly for over a twelvemonth, and had spent five weeks at Ems.

The uterus was bulky and tender, the cervix intensely granular, thick tenacious mucus exuding from the os uteri.

The vagina was so sensitive that it was with difficulty any proper examination could be made.

The catamenia had lately become scanty, and were often a week or two late. She was troubled with acne faciei, which became worse at the menstrual periods, and rendered her so unsightly she was ashamed to be seen.

The general health was attended to, and the bowels regulated.

A mixture of bromide and idiode of potassium was prescribed, which not only lessened the extreme sensitiveness, but seemed to have a marked influence in improving the acne.

Granulated bougies were passed from time to time, and iodized phenol freely applied. Boric acid was then inserted into the

vaginal cul-de-sac, and a dry tampon passed and retained for thirty-four hours. Antipyrin was given at the period with marked benefit. Arsenic was given later on.

The general health improved during the next few months; the acne almost disappeared. The periods were far less painful, more natural in appearance, and lasted longer. She could walk now with scarcely any discomfort; she was less depressed in spirits, and, as she expressed it herself, "quite a different woman." She reported herself from time to time, and early in the following year was practically quite well.

The catamenia appeared early in March, 1889, for the last time. Beyond rather troublesome sickness and frequent desire to micturate she progressed fairly well, and was safely delivered of a living child in December, 1889, three years and a half since her first confinement.

This case well illustrates the importance of persevering steadily with treatment, and not being discouraged because progress is slow.

ANTEFLEXION—GRANULAR CERVIX—TREATMENT—PREGNANCY.

In June, 1889, a thin, delicate, dyspeptic patient, aged thirty-three, married three years, mother of one child, aged two years and three months, consulted me, as she was much troubled with frequent desire to micturate, bleeding piles, flatulent dyspepsia, and leucorrhœa, these symptoms having been present ever since her confinement. The catamenia were regular as to time, very profuse, generally lasting eight or nine days.

Her appetite was bad, her nights very disturbed, and, as she expressed it herself, "she was all to pieces." On examination, the uterus was found to be bulky, anteflected, the cervix very granular. The left ovary was enlarged, prolapsed, and tender. She had, in additon, internal hæmorrhoids, which bled when the bowels acted, these latter being generally very constipated.

Measures were taken to improve the general health, the diges-

tion attended to, the bowels regulated, tea interdicted, maltine prescribed, and, later on, a tonic of quinine, iron, and strychnia.

Locally, an elastic ring was inserted, carbolic acid applied from time to time to the cervical canal, the hot douche, and glycerine tampons employed. Within a short time her general health improved considerably, the desire to micturate so often was relieved, the catamenia lessened in duration and quantity, and the bowels acted regularly without any bleeding. She was enabled to get about with much greater comfort, the ring serving to keep the ovary in a better position, and preventing her suffering from stitch in the side, which formerly had been very trying. In September she informed me that the period now lasted only three days, and was normal in quantity. Graduated bougies were employed on two or three occasions, and iodized phenol applied to the cervical canal.

In June, 1890, I was informed that she was expecting her confinement very shortly, and had engaged her nurse for July.

RETROVERSION—ENDOMETRITIS—TREATMENT—PREGNANCY.

This patient, aged twenty-four, married four years, mother of one child, aged three years, was first seen in September, 1889, for a slight ailment unconnected with the pelvis. She enjoyed fair health, looked perfectly well, and having been seen by a gynecologist, who told her that her ovary was prolapsed, she took no further advice, fearing that an operation would be proposed.

On inquiry, she stated that beyond some slight discomfort in the left iliac region at the times of her period, which generally lasted a whole week, a sense of weariness in the lower part of the back, and a tendency to be rather hysterical, she ailed nothing, and was not conscious of anything being wrong internally.

On examination, the uterus was found to be bulky, retroverted, mobile, cervix soft, os patulous, and cervical canal granular.

The uterus was replaced, a ring inserted, carbolic acid applied

to the cervical canal, the hot douche employed, and the general health attended to.

A mixture of nitro-muriatic acid was ordered, as the digestion was bad, and she was much troubled with flatulence. Tea was prohibited, and the bowels regulated. She was seen about once a month for the next few months, and gradually improved.

The catamenia ceased in March, 1889, having lasted ten days, and being more profuse than usual. In the latter part of April, whilst driving to the station in a pony carriage, she pulled up very abruptly to avoid coming into collision with another vehicle, and was much frightened. A bright sanguineous discharge from the vagina came on profusely and lasted three hours, but was checked after rest and care. When seen in July she was about four months pregnant. The ring was removed, as the uterus was no longer retroverted. I have since heard that the pregnancy is progressing satisfactorily.

CATALOGUE OF WORKS

PUBLISHED BY

H. K. LEWIS

136 GOWER STREET, LONDON, W.C.

Established 1844.

SIR WILLIAM AITKEN, KNT., M.D., F.R.S.
Professor of Pathology in the Army Medical School.

ON THE ANIMAL ALKALOIDS, THE PTOMAINES, LEUCOMAINES, AND EXTRACTIVES IN THEIR PATHOLOGICAL RELATIONS. Second edition, Crown 8vo, 3s. 6d.

E. CRESSWELL BABER, M.B. LOND.
Surgeon to the Brighton and Sussex Throat and Ear Dispensary.

A GUIDE TO THE EXAMINATION OF THE NOSE, WITH REMARKS ON THE DIAGNOSIS OF DISEASES OF THE NASAL CAVITIES. With Illustrations, small 8vo, 5s. 6d.

JAMES B. BALL, M.D. LOND., M.R.C.P.
Physician to the Department for Diseases of the Throat and Nose, and Senior Assistant Physician, West London Hospital.

A HANDBOOK OF DISEASES OF THE NOSE AND NASO-PHARYNX. Large post 8vo, with illustrations, 6s.

G. GRANVILLE BANTOCK, M.D., F.R.C.S. EDIN.
Surgeon to the Samaritan Free Hospital for Women and Children.

I.

ON THE USE AND ABUSE OF PESSARIES. Second Edit., with Illustrations, 8vo, 5s.

II.

ON THE TREATMENT OF RUPTURE OF THE FEMALE PERINEUM IMMEDIATE AND REMOTE. Second Edition, with Illustrations, 8vo, 3s. 6d.

III.

A PLEA FOR EARLY OVARIOTOMY. Demy 8vo, 2s.

FANCOURT BARNES, M.D., M.R.C.P.
Physician to the Chelsea Hospital for Women; Obstetric Physician to the Great Northern Hospital, &c.

A GERMAN-ENGLISH DICTIONARY OF WORDS AND TERMS USED IN MEDICINE AND ITS COGNATE SCIENCES. Square 12mo, Roxburgh binding, 9s.

ASHLEY W. BARRETT, M.B. LOND., M.R.C.S., L.D.S.E.
Dental Surgeon to, and Lecturer on Dental Surgery in the Medical School of, the London Hospital.

DENTAL SURGERY FOR MEDICAL PRACTITIONERS AND STUDENTS OF MEDICINE. Second edition, With Illustrations, cr. 8vo, 3s. 6d. [*Now ready.*

[LEWIS'S PRACTICAL SERIES.]

ROBERTS BARTHOLOW, M.A., M.D., LL.D.
Professor of Materia Medica and Therapeutics in the Jefferson Medical College of Philadelphia, &c., &c.

I.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS. Seventh Edition, Revised and Enlarged, 8vo, 18s. [*Just published.*

II.

A TREATISE ON THE PRACTICE OF MEDICINE, FOR THE USE OF STUDENTS AND PRACTITIONERS. Fifth Edition, with Illustrations, large 8vo, 21s.

H. CHARLTON BASTIAN, M.A., M.D., F.R.S.
Examiner in Medicine at the Royal College of Physicians; Professor of the Principles and Practice of Medicine in University College, London; Physician to University College Hospital, &c.

PARALYSES: CEREBRAL, BULBAR, AND SPINAL. A MANUAL OF DIAGNOSIS FOR STUDENTS AND PRACTITIONERS. With numerous Illustrations, 8vo, 12s. 6d.

GEO. M. BEARD, A.M., M.D.
Fellow of the New York Academy of Medicine, &c.

AND

A. D. ROCKWELL, A.M., M.D.
Professor of Electro-Therapeutics in the New York Post Graduate Medical School.

I.

A PRACTICAL TREATISE ON THE MEDICAL AND SURGICAL USES OF ELECTRICITY. Including Localized and General Faradization; Localized and Central Galvanization; Franklinization; Electrolysis and Galvano-Cautery. Sixth Edition. With nearly 200 Illustrations, roy. 8vo, 28s.

II.

NERVOUS EXHAUSTION (NEURASTHENIA) ITS HYGIENE, CAUSES, SYMPTOMS AND TREATMENT. Second edition, 8vo, 7s. 6d.

W. M. BEAUMONT.
Surgeon to the Bath Eye Infirmary.

THE SHADOW-TEST IN THE DIAGNOSIS AND ESTIMATION OF AMETROPIA. Post 8vo, 2s. 6d.

E. H. BENNETT, M.D., F.R.C.S.I.
Professor of Surgery, University of Dublin.
AND
D. J. CUNNINGHAM, M.D., F.R.C.S.I.
Professor of Anatomy and Chirurgery, University of Dublin.

THE SECTIONAL ANATOMY OF CONGENITAL CŒCAL HERNIA. With coloured plates, sm. folio, 5s. 6d.

A. HUGHES BENNETT, M.D., M.R.C.P.
Physician to the Hospital for Epilepsy and Paralysis, Regent's Park, and Assistant Physician to the Westminster Hospital.

I.

A PRACTICAL TREATISE ON ELECTRO-DIAGNOSIS IN DISEASES OF THE NERVOUS-SYSTEM. With Illustrations, 8vo, 8s. 6d.

II.

ILLUSTRATIONS OF THE SUPERFICIAL NERVES AND MUSCLES, WITH THEIR MOTOR POINTS; a knowledge of which is essential in the Art of Electro-Diagnosis. (Extracted from the above). 8vo, paper cover, 1s. 6d.; cloth, 2s.

HORATIO R. BIGELOW, M.D.
Permanent Member of the American Medical Association; Fellow of the British Gynæcological Society, &c.

GYNÆCOLOGICAL ELECTRO-THERAPEUTICS. With an Introduction by Dr. Georges Apostoli. With Illustrations, demy 8vo, 8s. 6d.

DR. THEODOR BILLROTH.
Professor of Surgery in Vienna.

GENERAL SURGICAL PATHOLOGY AND THERAPEUTICS. In Fifty-one Lectures. A Text-book for Students and Physicians. With additions by Dr. Alexander von Winiwarter, Professor of Surgery in Luttich. Translated from the Fourth German edition with the special permission of the Author, and revised from the Tenth edition, by C. E. Hackley, A.M., M.D. Copiously illustrated, 8vo, 18s.

DRS. BOURNEVILLE AND BRICON.

MANUAL OF HYPODERMIC MEDICATION. Translated from the Second Edition, and Edited, with Therapeutic Index of Diseases, by ANDREW S. CURRIE, M.D. Edin., &c. With Illustrations, crown 8vo, 6s.

G. H. BRANDT, M.D.

HAMMAM R'IRHA, ALGIERS. A Winter Health Resort and Mineral Water Cure Combined. With Frontispiece and Map, crown 8vo, 2s. 6d.

GURDON BUCK, M.D.

CONTRIBUTIONS TO REPARATIVE SURGERY: Showing its Application to the Treatment of Deformities, produced by Destructive Disease or Injury; Congenital Defects from Arrest or Excess of Development; and Cicatricial Contractions from Burns. Illustrated by numerous Engravings, large 8vo, 9s.

MARY BULLAR & J. F. BULLAR, M.B. CANTAB., F.R.C.S.

RECEIPTS FOR FLUID FOODS. 16mo, 1s.

STEPHEN SMITH BURT, M.D.

Professor of Clinical Medicine and Physical Diagnosis in the New York Post-graduate School and Hospital.

EXPLORATION OF THE CHEST IN HEALTH AND DISEASE. With Illustrations, crown 8vo, 6s.

DUDLEY W. BUXTON, M.D., B.S., M.R.C.P.

Administrator of Anæsthetics at University College Hospital and the Hospital for Women, Soho Square.

ANÆSTHETICS THEIR USES AND ADMINISTRATION. Second edition, with illustrations, crown 8vo. [*In the press.*

[LEWIS'S PRACTICAL SERIES.]

HARRY CAMPBELL, M.D., B.S. LOND., M.R.C.S.

Assistant Physician and Pathologist to the North-West London Hospital.

I.

THE CAUSATION OF DISEASE: An exposition of the ultimate factors which induce it. Demy 8vo, 12s. 6d.

II.

FLUSHING AND MORBID BLUSHING: THEIR PATHOLOGY AND TREATMENT. With plates and wood engravings, royal 8vo, 10s. 6d. [*Now ready.*

ALFRED H. CARTER, M.D. LOND.

Member of the Royal College of Physicians; Physician to the Queen's Hospital, Birmingham; late Examiner in Medicine for the University of Aberdeen, &c.

ELEMENTS OF PRACTICAL MEDICINE. Fifth Edition, crown 8vo, 9s.

P. CAZEAUX.

Adjunct Professor in the Faculty of Medicine of Paris, &c.

AND

S. TARNIER.

Professor of Obstetrics and Diseases of Women and Children in the Faculty of Medicine of Paris.

OBSTETRICS: THE THEORY AND PRACTICE; including the Diseases of Pregnancy and Parturition, Obstetrical Operations, &c. Seventh Edition, edited and revised by ROBERT J. HESS, M.D., with twelve full-page plates, five being coloured, and 165 wood-engravings, 1081 pages, roy. 8vo, 35s.

F. H. CHAMPNEYS, M.A., M.D. OXON., F.R.C.P.

Obstetric Physician and Lecturer on Obstetric Medicine at St. George's Hospital: Examiner in Obstetric Medicine in the University of London, &c.

EXPERIMENTAL RESEARCHES IN ARTIFICIAL RESPIRATION IN STILLBORN CHILDREN, AND ALLIED SUBJECTS. Crown 8vo, 3s. 6d.

W. BRUCE CLARKE, M.A., M.B. OXON., F.R.C.S.
Assistant Surgeon to, and Senior Demonstrator of Anatomy and Operative Surgery at, St. Bartholomew's Hospital; Surgeon to the West London Hospital; Examiner in Surgery to the University of Oxford.

THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE KIDNEY AMENABLE TO DIRECT SURGICAL INTERFERENCE. Demy 8vo, with Illustrations, 7s. 6d.

JOHN COCKLE, M.A., M.D.
Physician to the Royal Free Hospital.

ON INTRA-THORACIC CANCER. 8vo, 4s. 6d.

ALEXANDER COLLIE, M.D. ABERD., M.R.C.P. LOND.
Medical Superintendent of the Eastern Hospitals.

ON FEVERS: THEIR HISTORY, ETIOLOGY, DIAGNOSIS, PROGNOSIS, AND TREATMENT. Illustrated with Coloured Plates, crown 8vo, 8s. 6d. [LEWIS'S PRACTICAL SERIES.]

M. P. MAYO COLLIER, M.B., M.S. LOND., F.R.C.S. ENG.
Professor of Comparative Anatomy and Physiology at the Royal College of Surgeons, England, &c.

THE PHYSIOLOGY OF THE VASCULAR SYSTEM. Illustrations, 8vo, 3s. 6d.

WALTER S. COLMAN, M.B., M.R.C.P. LOND.
Pathologist and Registrar to the National Hospital for the Paralysed and Epileptic; Formerly Assistant to the Professor of Pathology in the University of Edinburgh.

SECTION CUTTING AND STAINING: A Practical Guide to the Preparation of Normal and Morbid Histological Specimens. Crown 8vo, 3s. [*Now ready.*

ALFRED COOPER, F.R.C.S.
Surgeon to the St Mark's Hospital for Fistula and other Diseases of the Rectum.

A PRACTICAL TREATISE ON THE DISEASES OF THE RECTUM. Crown 8vo, 4s.

W. H. CORFIELD, M.A., M.D. OXON.
Professor of Hygiene and Public Health in University College, London.

DWELLING HOUSES: their Sanitary Construction and Arrangements. Second Edit., with Illustrations. Cr. 8vo, 3s. 6d.

J. LEONARD CORNING, M.A., M.D.
Consultant in Nervous Diseases to St. Francis Hospital.

A PRACTICAL TREATISE ON HEADACHE, NEURALGIA, SLEEP AND ITS DERANGEMENTS, AND SPINAL IRRITATION. With an Appendix—Eye Strain, a Cause of Headache. By DAVID WEBSTER, M.D. Second edition, Demy 8vo, 7s. 6d.

EDWARD COTTERELL, M.R.C.S. ENG., L.R.C.P. LOND.
Late House Surgeon, University College Hospital.

ON SOME COMMON INJURIES TO LIMBS; their Treatment and After-treatment, including Bone-setting (so-called). With Illustrations, small 8vo, 3s. 6d.

CHARLES CREIGHTON, M.D.

I.

ILLUSTRATIONS OF UNCONSCIOUS MEMORY IN DISEASE, including a Theory of Alteratives. Post 8vo, 6s.

II.

CONTRIBUTIONS TO THE PHYSIOLOGY AND PATHOLOGY OF THE BREAST AND LYMPHATIC GLANDS. New Edition with additional chapter, with wood-cuts and plate, 8vo, 9s.

III.

BOVINE TUBERCULOSIS IN MAN: An Account of the Pathology of Suspected Cases. With Chromo-lithographs and other Illustrations, 8vo, 8s. 6d.

H. RADCLIFFE CROCKER, M.D. LOND., B.S., F.R.C.P.

Physician, Skin Department, University College Hospital.

DISEASES OF THE SKIN; THEIR DESCRIPTION, PATHOLOGY, DIAGNOSIS, AND TREATMENT. With 76 Illustrations, 8vo, 21s.

EDGAR M. CROOKSHANK, M.B. LOND., F.R.M.S.

Professor of Comparative Pathology and Bacteriology in, and Fellow of King's College, London.

I.

HISTORY AND PATHOLOGY OF VACCINATION. Vol. I., A Critical Inquiry. Vol. II., Selected Essays, (Edited) including works by Jenner, Pearson, Woodville, Henry Jenner, Loy, Rogers, Birch, Bousquet, Estlin, Ceely, Badcock, Auzias-Turenne, Dubreuilh and Layet. Two volumes, illustrated with 22 coloured plates, including reproductions of the plates illustrating Jenner's Inquiry, of selected plates from the work of Ceely and others, and with a reduced facsimile of an engraving of Mr. Jesty, a facsimile of the first folio of the manuscript of Jenner's original paper, a facsimile of an unpublished letter from Jenner to Mr. Head, Royal 8vo, 36s.

II.

MANUAL OF BACTERIOLOGY: being an Introduction to Practical Bacteriology. Illustrated with Coloured Plates from original drawings, and with other Illustrations in the text. Third Edition, 8vo.

[*In preparation.*

III.

PHOTOGRAPHY OF BACTERIA. Illustrated with 86 Photographs reproduced in autotype, and wood engravings, royal 8vo, 12s. 6d.

RIDLEY DALE, M.D., L.R.C.P. EDIN., M.R.C.S. ENG.

EPITOME OF SURGERY, being a complete compendium of the Science and Art of Surgery. Large 8vo, 10s. 6d.

HERBERT DAVIES, M.D., F.R.C.P.

Late Consulting Physician to the London Hospital.

THE MECHANISM OF THE CIRCULATION OF THE BLOOD THROUGH ORGANICALLY DISEASED HEARTS. Edited by ARTHUR TEMPLER DAVIES, B.A. (Nat. Science Honours), M.B. Cantab., M.R.C.P.; Physician to the Royal Hospital for Diseases of the Chest. Crown 8vo, 3s. 6d.

HENRY DAVIS, M.R.C.S. ENG.
Teacher and Administrator of Anæsthetics to St. Mary's and the National Dental Hospitals

GUIDE TO THE ADMINISTRATION OF ANÆSTHETICS. Fcap. 8vo, 2s.

J. THOMPSON DICKSON, M.A., M.B. CANTAB.
Late Lecturer on Mental Diseases at Guy's Hospital.

THE SCIENCE AND PRACTICE OF MEDICINE IN RELATION TO MIND, the Pathology of the Nerve Centres, and the Jurisprudence of Insanity being a course of Lectures delivered at Guy's Hospital. Illustrated by Chromo-lithographic Drawings and Physiological Portraits. 8vo, 14s.

HORACE DOBELL, M.D.
Consulting Physician to the Royal Hospital for Diseases of the Chest, &c.

I.

ON DIET AND REGIMEN IN SICKNESS AND Health and on the Interdependence and Prevention of Diseases and the Diminution of their Fatality. Seventh Edition, 8vo, 10s. 6d.

II.

AFFECTIONS OF THE HEART AND IN ITS NEIGH-BOURHOOD. Cases, Aphorisms, and Commentaries. Illustrated by the heliotype process. 8vo, 6s 6d.

JOHN EAGLE.
Member of the Pharmaceutical Society.

A NOTE-BOOK OF SOLUBILITIES. Arranged chiefly for the use of Prescribers and Dispensers. 12mo, 2s. 6d.

JOHN ERIC ERICHSEN.
Ex-President of the Royal College of Surgeons; Surgeon Extraordinary to H.M. the Queen, etc.

MODERN SURGERY; its Progress and Tendencies. Be-ing the Introductory Address delivered at University College at the opening of the Session 1873-74. Demy 8vo, 1s.

DR. FERBER.

MODEL DIAGRAM OF THE ORGANS IN THE THORAX AND UPPER PART OF THE ABDOMEN. With Letter-press Description. In 4to, coloured, 5s.

J. MAGEE FINNY, M.D. DUBL.
King's Professor of Practice of Medicine in School of Physic, Ireland, &c.

NOTES ON THE PHYSICAL DIAGNOSIS OF LUNG DISEASES. 32mo, 1s. 6d. [*Now ready.*

AUSTIN FLINT, M.D., LL.D.
Professor of Physiology and Physiological Anatomy in the Bellevue Hospital Medical College, New York; visiting Physician to the Bellevue Hospital, &c.

I.

A TEXT-BOOK OF HUMAN PHYSIOLOGY. Fourth edition, Illustrated by plates, and 316 wood engravings, large 8vo, 25s.

II.

THE PHYSIOLOGY OF THE SPECIAL SENSES AND GENERATION; (Being Vol. V. of the Physiology of Man). Roy. 8vo. 18s.

J. MILNER FOTHERGILL, M.D., M.R.C.P.
Late Physician to the City of London Hospital for Diseases of the Chest, Victoria Park, &c.

I.

A MANUAL OF DIETETICS. Large 8vo, 10s. 6d.

II.

THE HEART AND ITS DISEASES, WITH THEIR TREATMENT; INCLUDING THE GOUTY HEART. Second Edition, entirely re-written, copiously illustrated with woodcuts and lithographic plates. 8vo. 16s.

III.

INDIGESTION AND BILIOUSNESS. Second Edition, post 8vo, 7s. 6d.

IV.

GOUT IN ITS PROTEAN ASPECTS. Post 8vo, 7s. 6d.

V.

THE TOWN DWELLER: His Needs and His Wants. With an Introduction by B. W. RICHARDSON, M.D., LL.D., F.R.S. Post 8vo, 3s. 6d. [*Now ready.*

VI.

HEART STARVATION. (Reprinted from the Edinburgh Medical Journal). 8vo, 1s.

FORTESCUE FOX, M.D. LOND.
Fellow of the Medical Society of London.

STRATHPEFFER SPA: Its Climate and Waters. With OBSERVATIONS HISTORICAL, MEDICAL, AND GENERAL, DESCRIPTIVE OF THE VICINITY. Crown 8vo, with Map and Illustrations, 2s. 6d., *nett.*

ERNEST FRANCIS, F.C.S.
Demonstrator of Practical Chemistry, Charing Cross Hospital.

PRACTICAL EXAMPLES IN QUANTITATIVE ANALYSIS, forming a Concise Guide to the Analysis of Water, &c. Illustrated, fcap. 8vo, 2s. 6d.

ALFRED W. GERRARD, F.C.S.
Examiner to the Pharmaceutical Society; Teacher of Pharmacy and Demonstrator of Materia Medica at University College Hospital.

ELEMENTS OF MATERIA MEDICA AND PHARMACY. Crown 8vo, 8s. 6d.

HENEAGE GIBBES, M.D.
Lecturer on Physiology and on Normal and Morbid Histology in the Medical School of Westminster Hospital; etc.

PRACTICAL HISTOLOGY AND PATHOLOGY. Third Edition, revised and enlarged, crown 8vo, 6s.

C. A. GORDON, M.D., C.B.
Deputy Inspector General of Hospitals, Army Medical Department.

REMARKS ON ARMY SURGEONS AND THEIR WORKS. Demy 8vo, 5s.

JOHN GORHAM, M.R.C.S.

TOOTH EXTRACTION: a Manual on the proper mode of extracting Teeth. Third Edition, fcap. 8vo, 1s. 6d. [*Now ready.*

GEORGE M. GOULD, B.A., M.D.
Ophthalmic Surgeon to the Philadelphia Hospital, etc.

A NEW MEDICAL DICTIONARY: including all the words and phrases used in Medicine, with their proper pronunciation and definitions, 8vo, 16s.

W. R. GOWERS, M.D., F.R.C.P., M.R.C.S.
Physician to University College Hospital, &c.

DIAGRAMS FOR THE RECORD OF PHYSICAL SIGNS. In books of 12 sets of figures, 1s. Ditto, unbound, 1s.

J. B. GRESSWELL, M.R.C.V.S.
Provincial Veterinary Surgeon to the Royal Agricultural Society.

VETERINARY PHARMACOLOGY AND THERAPEUTICS. With an Index of Diseases and Remedies. Fcap. 8vo, 5s.

SAMUEL D. GROSS, M.D., LL.D., D.C.L. OXON.
Professor of Surgery in the Jefferson Medical College of Philadelphia.

A PRACTICAL TREATISE ON THE DISEASES, INJURIES, AND MALFORMATIONS OF THE URINARY BLADDER, THE PROSTATE GLAND, AND THE URETHRA. Third Edition, revised and edited by S. W. GROSS, A.M., M.D., Surgeon to the Philadelphia Hospital. Illustrated by 170 engravings, 8vo, 18s.

ALLAN McLANE HAMILTON, M.D.

THE MODERN TREATMENT OF HEADACHES. Square 16mo, 2s. 6d. [*Just Published.*

WILLIAM A. HAMMOND, M.D.

Professor of Mental and Nervous Diseases in the Medical Department of the University of the City of New York, &c.

I.

A TREATISE ON THE DISEASES OF THE NERVOUS SYSTEM. Seventh edition, with 112 Illustrations, large 8vo, 25s.

II.

A TREATISE ON INSANITY. Large 8vo, 25s.

III.

SPIRITUALISM AND ALLIED CAUSES AND CONDITIONS OF NERVOUS DERANGEMENT. With Illustrations, post 8vo, 8s. 6d.

ALEXANDER HARVEY, M.A., M.D.

Late Emeritus Professor of Materia Medica in the University of Aberdeen; Consulting Physician to the Aberdeen Royal Infirmary, &c.

I.

FIRST LINES OF THERAPEUTICS; as based on the Modes and the Processes of Healing, as occurring Spontaneously in Disease; and on the Modes and the Processes of Dying, as resulting Naturally from Disease. In a series of Lectures. Post 8vo, 5s.

II.

ON THE FŒTUS IN UTERO AS INOCULATING THE MATERNAL WITH THE PECULIARITIES OF THE PATERNAL ORGANISM. In a series of Essays now first collected. Fcap. 8vo, 4s. 6d.

ALEXANDER HARVEY, M.D.

Late Emeritus Professor of Materia Medica in the University of Aberdeen, &c

AND

ALEXANDER DYCE DAVIDSON, M.D., F.R.S. EDIN.

Late Regius Professor of Materia Medica in the University of Aberdeen.

SYLLABUS OF MATERIA MEDICA FOR THE USE OF STUDENTS, TEACHERS AND PRACTITIONERS. Based on the relative values of articles and preparations in the British Pharmacopœia. Ninth edition, 32mo, 1s. 6d.

K. M. HEANLEY.

Matron of Boston Cottage Hospital.

A MANUAL OF URINE TESTING. Compiled for the use of Matrons, Nurses, and Probationers. Post 8vo, 1s. 6d.

GRAILY HEWITT, M.D.

Professor of Midwifery and Diseases of Women in University College, Obstetrical Physician to University College Hospital, &c.

OUTLINES OF PICTORIAL DIAGNOSIS OF DISEASES OF WOMEN. Folio, 6s.

C. HIGGENS, F.R.C.S.
Ophthalmic Surgeon to Guy's Hospital; Lecturer on Ophthalmology at Guy's Hospital Medical School.

MANUAL OF OPHTHALMIC PRACTICE.
Crown 8vo, illustrations, 6s. [LEWIS'S PRACTICAL SERIES.]

BERKELEY HILL, M.B. LOND., F.R.C.S.
Professor of Clinical Surgery in University College; Surgeon to University College Hospital and to the Lock Hospital.

I.

THE ESSENTIALS OF BANDAGING. With directions for Managing Fractures and Dislocations; for administering Ether and Chloroform; and for using other Surgical Apparatus; with a Chapter on Surgical Landmarks. Sixth Edition, revised and enlarged, Illustrated by 144 Wood Engravings, crown 8vo, 5s.

II.

CHRONIC URETHRITIS, AND OTHER AFFECTIONS OF THE GENITO-URINARY ORGANS. Coloured plates, Royal 8vo, 3s. 6d.

BERKELEY HILL, M.B. LOND., F.R.C.S.
Professor of Clinical Surgery in University College; Surgeon to University College Hospital and to the Lock Hospital.

AND

ARTHUR COOPER, L.R.C.P., M.R.C.S.
Surgeon to the Westminster General Dispensary.

I.

SYPHILIS AND LOCAL CONTAGIOUS DISORDERS.
Second edition, entirely re-written, royal 8vo, 18s.

II.

THE STUDENT'S MANUAL OF VENEREAL DIS- EASES. Being a Concise Description of those Affections and of their Treatment. Fourth edition, post 8vo, 2s. 6d.

C. R. ILLINGWORTH, M.D. ED., M.R.C.S.

THE ABORTIVE TREATMENT OF SPECIFIC FE- BRILE DISORDERS BY THE BINIODIDE OF MERCURY. Crown 8vo, 3s. 6d.

SIR W. JENNER, Bart., M.D.
Physician in Ordinary to H.M. the Queen, and to H.R.H. the Prince of Wales.

THE PRACTICAL MEDICINE OF TO-DAY: Two Addresses delivered before the British Medical Association, and the Epidemiological Society, (1869). Small 8vo, 1s. 6d.

GEORGE LINDSAY JOHNSON, M.A., M.B., B.C. CANTAB.
Clinical Assistant, late House Surgeon and Chloroformist, Royal Westminster Ophthalmic Hospital, &c.

A NEW METHOD OF TREATING CHRONIC GLAU- COMA, based on Recent Researches into its Pathology. With Illustrations and coloured frontispiece, demy 8vo, 3s. 6d.

NORMAN KERR, M.D., F.L.S.

President of the Society for the Study of Inebriety; Consulting Physician, Dalrymple Home for Inebriates, etc.

INEBRIETY: its Etiology, Pathology, Treatment, and Jurisprudence. Second edition, Crown 8vo, 12s. 6d.

NORMAN W. KINGSLEY, M.D.S., D.D.S.

President of the Board of Censors of the State of New York; Member of the American Academy of Dental Science, &c.

A TREATISE ON ORAL DEFORMITIES AS A BRANCH OF MECHANICAL SURGERY. With over 350 Illustrations, 8vo, 16s. [*Now ready.*

J. WICKHAM LEGG, F.R.C.P.

Assistant Physician to Saint Bartholomew's Hospital, and Lecturer on Pathological Anatomy in the Medical School.

I.

ON THE BILE, JAUNDICE, AND BILIOUS DISEASES. With Illustrations in chromo-lithography, 719 pages, roy. 8vo, 25s.

II.

A GUIDE TO THE EXAMINATION OF THE URINE; intended chiefly for Clinical Clerks and Students. Sixth Edition, revised and enlarged, with Illustrations, fcap. 8vo, 2s. 6d.

III.

A TREATISE ON HÆMOPHILIA, SOMETIMES CALLED THE HEREDITARY HÆMORRHAGIC DIATHESIS. Fcap. 4to, 7s. 6d.

ARTHUR H. N. LEWERS, M.D. LOND., M.R.C.P. LOND.

Assistant Obstetric Physician to the London Hospital; Examiner in Midwifery and Diseases of Women to the Society of Apothecaries of London, &c.

A PRACTICAL TEXTBOOK OF THE DISEASES OF WOMEN. Second edition, Illustrations, crown 8vo, 9s. [*Now ready.*

[LEWIS'S PRACTICAL SERIES.]

DR. GEORGE LEWIN.

Professor at the Fr. Wilh. University, and Surgeon-in-Chief of the Syphilitic Wards and Skin Disease Wards of the Charité Hospital, Berlin.

THE TREATMENT OF SYPHILIS WITH SUBCUTA- NEOUS SUBLIMATE INJECTIONS. Translated by DR. CARL PRŒGLE, and DR. E. H. GALE, late Surgeon United States Army. Small 8vo, 7s.

LEWIS'S POCKET CASE BOOK FOR PRACTITIONERS AND STUDENTS. Designed by A. T. BRAND, M.D. Roan, with pencil, 3s. 6d. *nett.*

LEWIS'S POCKET MEDICAL VOCABULARY. Over 200 pp., 32mo, roan, 3s. 6d.

LEWIS'S PRACTICAL SERIES.

Under this title Mr. LEWIS is publishing a Series of Monographs, embracing the various branches of Medicine and Surgery.

The volumes are written by well-known Hospital Physicians and Surgeons, recognized as authorities in the subjects of which they treat. The works are intended to be of a THOROUGHLY PRACTICAL nature, calculated to meet the requirements of the practitioner and student, and to present the most recent information in a compact and readable form.

HYGIENE AND PUBLIC HEALTH.
By LOUIS C. PARKES, M.D., D.P.H. LOND. UNIV., Fellow of the Sanitary Institute; Member of the Board of Examiners; Assistant Professor of Hygiene and Public Health at University College. etc. Second edition, with numerous Illustrations, cr. 8vo, 9s. *[Just published.*

MANUAL OF OPHTHALMIC PRACTICE.
By C. HIGGENS, F.R.C.S., Ophthalmic Surgeon to Guy's Hospital; Lecturer on Ophthalmology at Guy's Hospital Medical School. With Illustrations, crown 8vo, 6s.

A PRACTICAL TEXTBOOK OF THE DISEASES OF WOMEN.
By ARTHUR H. N. LEWERS, M.D. Lond., M.R.C.P. Lond., Assistant Obstetric Physician to the London Hospital; Examiner in Midwifery and Diseases of Women to the Society of Apothecaries of London, etc. Second Edition, with Illustrations, crown 8vo., 9s.

ANÆSTHETICS THEIR USES AND ADMINISTRATION.
By DUDLEY W. BUXTON, M.D., B S., M.R.C.P., Administrator of Anæsthetics in University College Hospital and the Hospital for Women, Soho Square. Crown 8vo, 4s.

TREATMENT OF DISEASE IN CHILDREN: EMBODYING THE OUTLINES OF DIAGNOSIS AND THE CHIEF PATHOLOGICAL DIFFERENCES BETWEEN CHILDREN AND ADULTS. By ANGEL MONEY, M.D., F.R.C.P., Assistant Physician to the Hospital for Sick Children, Great Ormond Street, and to University College Hospital. Second edition, cr. 8vo, 10s. 6d.

ON FEVERS: THEIR HISTORY, ETIOLOGY, DIAGNOSIS, PROGNOSIS, AND TREATMENT. By ALEXANDER COLLIE, M.D. Aberd., Member of the Royal College of Physicians of London; Medical Superintendent of the Eastern Hospitals; Secretary of the Epidemiological Society for Germany and Russia. Illustrated with Coloured Plates, crown 8vo, 8s. 6d.

HANDBOOK OF DISEASES OF THE EAR FOR THE USE OF STUDENTS AND PRACTITIONERS. By URBAN PRITCHARD, M.D. Edin., F.R.C.S. Eng., Professor of Aural Surgery at King's College, London; Aural Surgeon to King's College Hospital; Senior Surgeon to the Royal Ear Hospital. With Illustrations, crown 8vo, 4s. 6d.

A PRACTICAL TREATISE ON DISEASES OF THE KIDNEYS AND URINARY DERANGEMENTS. By CHARLES HENRY RALFE, M.A., M.D. Cantab., Fellow of the Royal College of Physicians, London; Assistant Physician to the London Hospital; Examiner in Medicine to the University of Durham, etc., etc. With Illustrations, crown 8vo, 10s. 6d.

DENTAL SURGERY FOR MEDICAL PRACTITIONERS AND STUDENTS OF MEDICINE. By ASHLEY W. BARRETT, M.B. Lond., M.R.C.S., L.S.D., Dental Surgeon to, and Lecturer on Dental Surgery in the Medical School of, the London Hospital. Second edition, with Illustrations, cr. 8vo, 3s. 6d.

BODILY DEFORMITIES AND THEIR TREATMENT: A HANDBOOK OF PRACTICAL ORTHOPÆDICS. By H. A. REEVES, F.R.C.S. Edin., Senior Assistant Surgeon and Teacher of Practical Surgery at the London Hospital; Surgeon to the Royal Orthopædic Hospital, &c. With numerous Illustrations, cr 8vo, 8s. 6d.

Further volumes will be announced in due course.

T. R. LEWIS, M.B., F.R.S. ELECT, ETC.
Late Fellow of the Calcutta University, Surgeon-Major Army Medical Staff, &c.

PHYSIOLOGICAL AND PATHOLOGICAL RESEARCHES. Arranged and edited by SIR WM. AITKEN, M.D., F.R.S., G. E. DOBSON, M.B., F.R.S., and A. E. BROWN, B.Sc. Crown 4to, portrait, 5 maps, 43 plates including 15 chromo-lithographs, and 67 wood engravings, 30s. *nett.*

C. B. LOCKWOOD, F.R.C.S.
Hunterian Professor, Royal College of Surgeons of England; Surgeon to the Great Northern Hospital; Senior Demonstrator of Anatomy and Operative Surgery in St. Bartholomew's Hospital.

HUNTERIAN LECTURES ON THE MORBID ANATOMY, PATHOLOGY AND TREATMENT OF HERNIA. Demy 8vo, 36 illustrations, 5s.

J. S. LOMBARD, M.D.
Formerly Assistant Professor of Physiology in Harvard College.

I.

EXPERIMENTAL RESEARCHES ON THE REGIONAL TEMPERATURE OF THE HEAD, under Conditions of Rest, Intellectual Activity and Emotion. With Illustrations, 8vo, 8s.

II.

ON THE NORMAL TEMPERATURE OF THE HEAD. 8vo, 5s.

WILLIAM THOMPSON LUSK, A.M., M.D.
Professor of Obstetrics and Diseases of Women in the Bellevue Hospital Medical College, &c.

THE SCIENCE AND ART OF MIDWIFERY.
Third Edition, with numerous Illustrations, 8vo, 18s.

A. W. MACFARLANE, M.D., F.R.C.P. EDIN.
Examiner in Medical Jurisprudence in the University of Glasgow; Honorary Consulting Physician (late Physician) Kilmarnock Infirmary.

INSOMNIA AND ITS THERAPEUTICS.
Medium 8vo, 12s. 6d. [*Just Published.*

SURGEON-MAJOR C. J. McNALLY, M.D., D.P.H. CAMB.
Fellow of the Madras University; Professor of Chemistry, Madras Medical College.

THE ELEMENTS OF SANITARY SCIENCE.
Plates, Demy 8vo, 8s. 6d.

RAWDON MACNAMARA.
Professor of Materia Medica, Royal College of Surgeons, Ireland; Senior Surgeon to the Westmoreland (Lock) Government Hospital; Surgeon to the Meath Hospital, etc.

AN INTRODUCTION TO THE STUDY OF THE BRITISH PHARMACOPŒIA. Demy 32mo, 1s. 6d. [*Just published*

JOHN MACPHERSON, M.D.

Inspector-General of Hospitals H.M. Bengal Army (Retired). Author of "Cholera in its Home," &c.

I.

ANNALS OF CHOLERA FROM THE EARLIEST PERIODS TO THE YEAR 1817. With a map. Demy 8vo, 7s. 6d.

II.

BATH, CONTREXEVILLE, AND THE LIME SUL-PHATED WATERS. Crown 8vo, 2s. 6d.

DR. V. MAGNAN.

Physician to St. Ann Asylum, Paris; Laureate of the Institute.

ON ALCOHOLISM, the Various Forms of Alcoholic Delirium and their Treatment. Translated by W. S. GREENFIELD, M.D., M.R.C.P. 8vo, 7s. 6d.

A. COWLEY MALLEY, B.A., M.B., B.CH. T.C.D.

PHOTO-MICROGRAPHY; including a description of the Wet Collodion and Gelatino-Bromide Processes, together with the best methods of Mounting and Preparing Microscopic Objects for Photo-Micrography. Second Edition, with Photographs and Illustrations, crown 8vo, 7s. 6d.

PATRICK MANSON, M.D., C.M.

Amoy, China.

THE FILARIA SANGUINIS HOMINIS; AND CER-TAIN NEW FORMS OF PARASITIC DISEASE IN INDIA, CHINA, AND WARM COUNTRIES. Illustrated with Plates and Charts. 8vo, 10s. 6d.

PROFESSOR MARTIN.

MARTIN'S ATLAS OF OBSTETRICS AND GYNÆCO-LOGY. Edited by A. MARTIN, Docent in the University of Berlin. Translated and edited with additions by FANCOURT BARNES, M.D., M.R.C.P., Physician to the Chelsea Hospital for Women; Obstetric Physician to the Great Northern Hospital; and to the Royal Maternity Charity of London, &c. Medium 4to, Morocco half bound, 31s. 6d. *nett.*

WILLIAM MARTINDALE, F.C.S.

Late Examiner of the Pharmaceutical Society, and late Teacher of Pharmacy and Demonstrator of Materia Medica at University College.

AND

W. WYNN WESTCOTT, M.B. LOND.

Deputy Coroner for Central Middlesex.

THE EXTRA PHARMACOPŒIA with the additions introduced into the British Pharmacopœia, 1885, with Medical References, and a Therapeutic Index of Diseases and Symptoms. Sixth Edition, limp roan, med. 24mo, 7s. 6d. [*Now ready.*

WILLIAM MARTINDALE, F.C.S.

Late Examiner of the Pharmaceutical Society, &c.

COCA, COCAINE, AND ITS SALTS: their History, Medical and Economic Uses, and Medicinal Preparations. Fcap. 8vo, 2s.

MATERIA MEDICA LABELS.

Adapted for Public and Private Collections. Compiled from the British Pharmacopœia of 1885. The Labels are arranged in Two Divisions:—

Division I.—Comprises, with few exceptions, Substances of Organized Structure, obtained from the Vegetable and Animal Kingdoms.

Division II.—Comprises Chemical Materia Medica, including Alcohols, Alkaloids, Sugars, and Neutral Bodies.

On plain paper, 10s. 6d. *nett.* On gummed paper, 12s. 6d. *nett.*

*** Specimens of the Labels, of which there are over 450, will be sent on application.

S. E. MAUNSELL, L.R.C.S.I.

Surgeon-Major, Medical Staff.

NOTES OF MEDICAL EXPERIENCES IN INDIA PRINCIPALLY WITH REFERENCE TO DISEASES OF THE EYE. With Map, post 8vo, 3s. 6d.

J. F. MEIGS, M.D.

Consulting Physician to the Children's Hospital, Philadelphia.

AND

W. PEPPER, M.D.

Lecturer on Clinical Medicine in the University of Pennsylvania.

A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN. Seventh Edition, revised and enlarged, roy. 8vo, 28s.

Wm. JULIUS MICKLE, M.D., F.R.C.P. LOND.
Medical Superintendent, Grove Hall Asylum, London, &c.

I.

GENERAL PARALYSIS OF THE INSANE.
Second Edition, enlarged and rewritten, 8vo, 14s.

II.

ON INSANITY IN RELATION TO CARDIAC AND AORTIC DISEASE AND PHTHISIS. Crown 8vo, 3s. 6d.

KENNETH W. MILLICAN, B.A. CANTAB., M.R.C.S.

THE EVOLUTION OF MORBID GERMS: A Contribution to Transcendental Pathology. Cr. 8vo, 3s. 6d.

ANGEL MONEY, M.D. LOND., F.R.C.P.
Assistant Physician to University College Hospital, and to the Hospital for Sick Children Great Ormond Street; Assistant Professor of Clinical Medicine in University College, London, &c.

I.

THE STUDENT'S TEXTBOOK OF THE PRACTICE OF MEDICINE. Fcap. 8vo, 6s. 6d. [*Just Published.*

II.

TREATMENT OF DISEASE IN CHILDREN: EMBODYING THE OUTLINES OF DIAGNOSIS AND THE CHIEF PATHOLOGICAL DIFFERENCES BETWEEN CHILDREN AND ADULTS. Second edition, crown 8vo, 10s. 6d. [*Now ready.*
[LEWIS'S PRACTICAL SERIES.]

E. A. MORSHEAD, M.R.C.S., L.R.C.P.
Assistant to the Professor of Medicine in University College, London.

TABLES OF THE PHYSIOLOGICAL ACTION OF DRUGS. Fcap. 8vo, 1s.

A. STANFORD MORTON, M.B., F.R.C.S. ENG.
Surgeon to the Royal South London Ophthalmic Hospital.

REFRACTION OF THE EYE: Its Diagnosis, and the Correction of its Errors. Third Edition, with Illustrations, small 8vo. 3s.

C. W. MANSELL MOULLIN, M.A., M.D. OXON., F.R.C.S. ENG.
Assistant Surgeon and Senior Demonstrator of Anatomy at the London Hospital; formerly Radcliffe Travelling Fellow and Fellow of Pembroke College, Oxford.

SPRAINS; THEIR CONSEQUENCES AND TREATMENT. Crown 8vo, 5s.

PAUL F. MUNDE, M.D.

Professor of Gynecology at the New York Polyclinic; President of the New York Obstetrical Society and Vice-President of the British Gynecological Society, &c.

THE MANAGEMENT OF PREGNANCY, PARTURITION, AND THE PUERPERAL STATE. Second edition, square 8vo, 3s. 6d.

WILLIAM MURRELL, M.D., F.R.C.P.

Lecturer on Pharmacology and Therapeutics at Westminster Hospital; late Examiner in Materia Medica to the Royal College of Physicians of London, etc.

I.

MASSOTHERAPEUTICS, OR MASSAGE AS A MODE OF TREATMENT. Fifth edition, with Illustrations, crown 8vo, 4s. 6d. [*Just ready.*

II.

WHAT TO DO IN CASES OF POISONING. Sixth edition, royal 32mo, 3s. 6d. [*Just published.*

III.

NITRO-GLYCERINE AS A REMEDY FOR ANGINA PECTORIS. Crown 8vo, 3s. 6d.

IV.

CHRONIC BRONCHITIS AND ITS TREATMENT. Crown 8vo, 3s. 6d.

DR. FELIX von NIEMEYER.

Late Professor of Pathology and Therapeutics; Director of the Medical Clinic of the University of Tübingen.

A TEXT-BOOK OF PRACTICAL MEDICINE, WITH PARTICULAR REFERENCE TO PHYSIOLOGY AND PATHOLOGICAL ANATOMY. Translated from the Eighth German Edition by special permission of the Author, by GEORGE H. HUMPHERY, M.D., and CHARLES E. HACKLEY, M.D. Revised edition, 2 vols., large 8vo, 36s.

GEORGE OLIVER, M.D., F.R.C.P.

I.

THE HARROGATE WATERS: Data Chemical and Therapeutical, with notes on the Climate of Harrogate. Addressed to the Medical Profession. Crown 8vo, with Map of the Wells, 3s. 6d.

II.

ON BEDSIDE URINE TESTING: a Clinical Guide to the Observation of Urine in the course of Work. Fourth Edition, fcap. 8vo, 3s. 6d. [*Just published.*

SAMUEL OSBORN, F.R.C.S.

Assistant-Surgeon to the Hospital for Women; Surgeon Royal Naval Artillery Volunteers.

I.

AMBULANCE LECTURES: FIRST AID. Second edition with Illustrations, fcap. 8vo, 1s. 6d.

II.

AMBULANCE LECTURES: NURSING. With Illustrations, fcap. 8vo, 1s. 6d.

WILLIAM OSLER, M.D., F.R.C.P. LOND.
Professor of Clinical Medicine in the University of Pennsylvania, &c.

THE CEREBRAL PALSIES OF CHILDREN. A Clinical Study from the Infirmary for Nervous Diseases, Philadelphia. Demy 8vo, 5s. [*Just Published.*

K. W. OSTROM.
Instructor in Massage and Swedish Movements in the Hospital of the University of Pennsylvania.

MASSAGE AND THE ORIGINAL SWEDISH MOVEMENTS. With illustrations, 12mo, 2s. 6d. *nett.* [*Now ready.*

ROBERT W. PARKER.
Surgeon to the East London Hospital for Children, and to the Grosvenor Hospital for Women and Children.

I.

TRACHEOTOMY IN LARYNGEAL DIPHTHERIA, AFTER TREATMENT AND COMPLICATIONS. Second Edition. With Illustrations, 8vo, 5s.

II.

CONGENITAL CLUB-FOOT; ITS NATURE AND TREATMENT. With special reference to the subcutaneous division of Tarsal Ligaments. 8vo, 7s. 6d.

LOUIS C. PARKES, M.D., D.P.H. LOND. UNIV.
Fellow of the Sanitary Institute; Member of the Board of Examiners; Assistant Professor of Hygiene and Public Health at University College, &c.

HYGIENE AND PUBLIC HEALTH. Second edition, with numerous Illustrations, crown 8vo, 9s. [*Just Published.*
[LEWIS'S PRACTICAL SERIES.]

JOHN S. PARRY, M.D.
Obstetrician to the Philadelphia Hospital, Vice-President of the Obstetrical and Pathological Societies of Philadelphia, &c.

EXTRA-UTERINE PREGNANCY; Its Causes, Species, Pathological Anatomy, Clinical History, Diagnosis, Prognosis and Treatment. 8vo, 8s.

THEOPHILUS PARVIN, M.D.
Professor of Obstetrics and Diseases of Women and Children at the Jefferson Medical School.

LECTURES ON OBSTETRIC NURSING, Delivered at the Training School for Nurses of the Philadelphia Hospital. Post 8vo, 2s. 6d.

E. RANDOLPH PEASLEE, M.D., LL.D.
Late Professor of Gynæcology in the Medical Department of Dartmouth College; President of the New York Academy of Medicine, &c., &c.

OVARIAN TUMOURS: Their Pathology, Diagnosis, and Treatment, especially by Ovariotomy. Illustrations, roy. 8vo, 16s.

G. V. POORE, M.D., F.R.C.P.
Professor of Medical Jurisprudence, University College; Assistant Physician to, and Physician in charge of the Throat Department of, University College Hospital.

LECTURES ON THE PHYSICAL EXAMINATION OF THE MOUTH AND THROAT. With an Appendix of Cases. 8vo, 3s. 6d.

R. DOUGLAS POWELL, M.D., F.R.C.P., M.R.C.S.
Physician Extraordinary to H.M. the Queen; Physician to the Middlesex Hospital and Physician to the Hospital for Consumption and Diseases of the Chest at Brompton.

DISEASES OF THE LUNGS AND PLEURÆ, INCLUDING CONSUMPTION. Third edition, entirely rewritten and enlarged. With coloured plates and wood engravings, 8vo, 16s.

URBAN PRITCHARD, M.D. EDIN., F.R.C.S. ENG.
Professor of Aural Surgery at King's College, London; Aural Surgeon to King's College Hospital; Senior Surgeon to the Royal Ear Hospital.

HANDBOOK OF DISEASES OF THE EAR FOR THE USE OF STUDENTS AND PRACTITIONERS. With Illustrations, crown 8vo, 4s. 6d. [Lewis's Practical Series.]

CHARLES W. PURDY, M.D. (QUEEN'S UNIV.)
Professor of Genito-Urinary and Renal Diseases in the Chicago Polyclinic, &c., &c.

BRIGHT'S DISEASE AND THE ALLIED AFFECTIONS OF THE KIDNEYS. With Illustrations, large 8vo, 8s. 6d.

CHARLES HENRY RALFE, M.A., M.D. CANTAB., F.R.C.P. LOND.
Assistant Physician to the London Hospital; Examiner in Medicine to the University of Durham, etc., etc.

A PRACTICAL TREATISE ON DISEASES OF THE KIDNEYS AND URINARY DERANGEMENTS. With Illustrations, crown 8vo, 10s. 6d. [Lewis's Practical Series.]

FRANCIS H. RANKIN, M.D.
President of the New York Medical Society.

HYGIENE OF CHILDHOOD. Suggestions for the care of Children after the Period of Infancy to the completion of Puberty. Crown 8vo, 3s.

AMBROSE L. RANNEY, A.M., M.D.
Professor of the Anatomy and Physiology of the Nervous System in the New York Post-Graduate Medical School and Hospital; Professor of Nervous and Mental Diseases in the Medical Department of the University of Vermont.

THE APPLIED ANATOMY OF THE NERVOUS SYSTEM. Being a Study of this portion of the Human Body from a stand-point of its general interest and practical utility in Diagnosis, designed for use as a text-book and a work of reference. Second edit., 238 Illustrations, large 8vo, 21s. [*Just published.*

H. A. REEVES, F.R.C.S. EDIN.

Senior Assistant Surgeon and Teacher of Practical Surgery at the London Hospital; Surgeon to the Royal Orthopædic Hospital.

BODILY DEFORMITIES AND THEIR TREATMENT: A HANDBOOK OF PRACTICAL ORTHOPÆDICS. With numerous Illustrations, crown 8vo, 8s. 6d.
[LEWIS'S PRACTICAL SERIES].

RALPH RICHARDSON, M.A., M.D.

Fellow of the College of Physicians, Edinburgh.

ON THE NATURE OF LIFE: An Introductory Chapter to Pathology. Second edition, revised and enlarged. Fcap. 4to, 10s. 6d.

W. RICHARDSON, M.A., M.D., M.R.C.P.

REMARKS ON DIABETES, ESPECIALLY IN REFERENCE TO TREATMENT. Demy 8vo, 4s. 6d.

SAMUEL RIDEAL, D.SC. (LOND.), F.I.C., F.C.S., F.G.S.

Fellow of University College, London.

I.

PRACTICAL ORGANIC CHEMISTRY; The Detection and Properties of some of the more important Organic Compounds. 12mo, 2s. 6d. [*Just published.*

II.

PRACTICAL CHEMISTRY FOR MEDICAL STUDENTS, required at the First Examination of the Conjoint Examining Board in England. Foolscap 8vo, 2s.

E. A. RIDSDALE.

Associate of the Royal School of Mines.

COSMIC EVOLUTION; being Speculations on the Origin of our Environment. Fcap. 8vo, 3s.

SYDNEY RINGER, M.D., F.R.S.

Professor of the Principles and Practice of Medicine in University College; Physician to, and Professor of Clinical Medicine in, University College Hospital.

I.

A HANDBOOK OF THERAPEUTICS. Twelfth Edition, thoroughly revised, 8vo, 15s.

II.

ON THE TEMPERATURE OF THE BODY AS A MEANS OF DIAGNOSIS AND PROGNOSIS IN PHTHISIS. Second edition, small 8vo, 2s. 6d.

FREDERICK T. ROBERTS, M.D., B.SC., F.R.C.P.

Examiner in Medicine at the University of London; Professor of Therapeutics and of Clinical Medicine in University College; Physician to University College Hospital; Physician to Brompton Consumption Hospital, &c.

I.

A HANDBOOK OF THE THEORY AND PRACTICE OF MEDICINE. Seventh edition, with Illustrations, in one volume, large 8vo, 21s.

*** *Copies may also be had bound in two volumes cloth for 1s. 6d. extra.*

II.

THE OFFICINAL MATERIA MEDICA.
Second edition, entirely rewritten in accordance with the latest British Pharmacopœia, fcap. 8vo, 7s. 6d.

R. LAWTON ROBERTS, M.D., M.R.C.S.

Honorary Life Member of, and Lecturer and Examiner to, the St. John Ambulance Association.

ILLUSTRATED LECTURES ON AMBULANCE WORK.
Third edition copiously Illustrated, crown 8vo, 2s. 6d.

D. B. St. JOHN ROOSA, M.A., M.D.

Professor of Diseases of the Eye and Ear in the University of the City of New York; Surgeon to the Manhattan Eye and Ear Hospital.

A PRACTICAL TREATISE ON THE DISEASES OF THE EAR, including the Anatomy of the Organ. Sixth edition, Illustrated by wood engravings and chromo-lithographs, large 8vo, 25s.

ROBSON ROOSE, M.D.

Fellow of the Royal College of Physicians in Edinburgh.

I.

GOUT, AND ITS RELATIONS TO DISEASES OF THE LIVER AND KIDNEYS. Sixth Edition, crown 8vo, 3s. 6d.

II.

NERVE PROSTRATION AND OTHER FUNCTIONAL DISORDERS OF DAILY LIFE. Crown 8vo, 10s. 6d.

III.

LEPROSY AND ITS TREATMENT: as Illustrated by Norwegian Experience. Crown 8vo, 3s. 6d.

BERNARD ROTH, F.R.C.S.

Fellow of the Medical Society of London; Member of the Clinical and Pathological Societies and of the Medical Officers of Schools' Association.

THE TREATMENT OF LATERAL CURVATURE OF THE SPINE. With Photographic and other Illustrations, demy 8vo, 5s.

J. BURDON SANDERSON, M.D., LL.D., F.R.S.

Jodrell Professor of Physiology in University College, London.

UNIVERSITY COLLEGE COURSE OF PRACTICAL EXERCISES IN PHYSIOLOGY. With the co-operation of F. J. M. PAGE, B.Sc., F.C.S.; W. NORTH, B.A., F.C.S., and AUG. WALLER, M.D. Demy 8vo, 3s. 6d.

W. H. O. SANKEY, M.D. LOND., F.R.C.P.

Late Lecturer on Mental Diseases, University College, London, etc.

LECTURES ON MENTAL DISEASE. Second Edition, with coloured plates, 8vo, 12s. 6d.

JOHN SAVORY.

Member of the Society of Apothecaries, London.

A COMPENDIUM OF DOMESTIC MEDICINE AND COMPANION TO THE MEDICINE CHEST: Intended as a source of easy reference for Clergymen, Master Mariners, and Travellers; and for Families resident at a distance from professional assistance. Tenth Edition, sm. 8vo, 5s.

E. SCHMIEGELOW, M.D.

Consulting Physician in Laryngology to the Municipal Hospital and Director of the Oto-Laryngological Department in the Polyclinic at Copenhagen.

ASTHMA: Especially in its Relation to Nasal Disease. Demy 8vo, 4s. 6d.

DR. B. S. SCHULTZE.

Professor of Gynecology; Director of the Lying-in Hospital, and of the Gynecological Clinic at Jena.

THE PATHOLOGY AND TREATMENT OF DISPLACEMENTS OF THE UTERUS. Translated by J. J. MACAN, M.A., M.R.C.S. and edited by A. V. MACAN, M.B., M.Ch., Master of the Rotunda Lying-in Hospital, Dublin. With 120 Illustrations, medium 8vo, 12s. 6d.

JOHN V. SHOEMAKER, A.M., M.D.
Professor of Skin Diseases in the Medico-Chirurgical College and Hospital of Philadelphia; Physician to the Philadelphia Hospital for Diseases of the Skin.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. Coloured Plates and other Illustrations, large 8vo, 24s.

WM. JAPP SINCLAIR, M.A., M.D.
Honorary Physician to the Manchester Southern Hospital for Women and Children, and Manchester Maternity Hospital.

ON GONORRHŒAL INFECTION IN WOMEN. Post 8vo, 4s.

A. J. C. SKENE, M.D.
Professor of Gynecology in the Long Island College Hospital, Brooklyn, New York.

TREATISE ON THE DISEASES OF WOMEN, FOR THE USE OF STUDENTS AND PRACTITIONERS. Nine coloured plates and 251 engravings, large 8vo, 28s.

ALDER SMITH, M.B. LOND., F.R.C.S.
Resident Medical Officer, Christ's Hospital, London.

RINGWORM: Its Diagnosis and Treatment. Third Edition, enlarged, with Illustrations, fcap. 8vo, 5s. 6d.

J. LEWIS SMITH, M.D.
Physician to the New York Infants' Hospital; Clinical Lecturer on Diseases of Children in Bellevue Hospital Medical College.

A TREATISE ON THE DISEASES OF INFANCY AND CHILDHOOD. Fifth Edition, with Illustrations, large 8vo, 21s.

FRANCIS W. SMITH, M.B., B.S.

THE SALINE WATERS OF LEAMINGTON. Second Edit., with Illustrations, crown 8vo, 1s. *nett.*

JOHN KENT SPENDER, M.D. LOND.
Physician to the Royal Mineral Water Hospital, Bath.

THE EARLY SYMPTOMS AND THE EARLY TREATMENT OF OSTEO-ARTHRITIS, commonly called Rheumatoid Arthritis, with special reference to the Bath Thermal Waters. Sm. 8vo. 2s. 6d.

LOUIS STARR, M.D.
Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Physician to the Children's Hospital, Philadelphia, &c.

HYGIENE OF THE NURSERY. Including the General Regimen and Feeding of Infants and Children, and the Domestic Management of the Ordinary Emergiences of Early Life. Second edition, with Illustrations, crown 8vo, 3s. 6d. [*Just published.*

JAMES STARTIN, M.B., M.R.C.S.
Surgeon and Joint Lecturer to St. John's Hospital for Diseases of the Skin.

LECTURES ON THE PARASITIC DISEASES OF THE SKIN. VEGETOID AND ANIMAL. With Illustrations, crown 8vo, 2s. 6d.

W. R. H. STEWART, F.R.C.S., L.R.C.P. EDIN.
Aural Surgeon to the Great Northern Central Hospital; Surgeon to the London Throat Hospital, &c.

EPITOME OF DISEASES AND INJURIES OF THE EAR, with a Chapter on Naso-Pharyngeal Diseases causing Deafness. Demy 32mo, 2s. 6d.

LEWIS A. STIMSON, B.A., M.D.
Surgeon to the Presbyterian and Bellevue Hospitals; Professor of Clinical Surgery in the Medical Faculty of the University of the City of New York, &c.

A MANUAL OF OPERATIVE SURGERY.
Second Edition, with three hundred and forty-two Illustrations, post 8vo, 10s. 6d.

ADOLF STRÜMPELL.
Director of the Medical Clinic in the University of Erlangen.

A TEXT-BOOK OF MEDICINE FOR STUDENTS AND PRACTITIONERS. Translated from the latest German edition by Dr. H. F. VICKERY and Dr. P. C. KNAPP, with Editorial Notes by Dr. F. C. SHATTUCK, Visiting Physician to the Massachusetts General Hospital, etc. Complete in one large vol., imp. 8vo, with 111 Illustrations, 28s.

JUKES DE STYRAP, M.K.Q.C.P., ETC.
Physician-Extraordinary, late Physician in Ordinary, to the Salop Infirmary; Consulting Physician to the South Salop and Montgomeryshire Infirmaries, etc.

I.

THE YOUNG PRACTITIONER: WITH PRACTICAL HINTS AND INSTRUCTIVE SUGGESTIONS, AS SUBSIDIARY AIDS, FOR HIS GUIDANCE ON ENTERING INTO PRIVATE PRACTICE. Demy 8vo, 7s. 6d. *nett.*

II.

A CODE OF MEDICAL ETHICS: WITH GENERAL AND SPECIAL RULES FOR THE GUIDANCE OF THE FACULTY AND THE PUBLIC IN THE COMPLEX RELATIONS OF PROFESSIONAL LIFE. Third edition, demy 8vo, 3s. *nett.*

III.

MEDICO-CHIRURGICAL TARIFFS.
Fourth Edition, fcap. 4to, revised and enlarged, 2s. *nett.*

IV.

THE YOUNG PRACTITIONER: HIS CODE AND TARIFF. Being the above three works in one volume. Demy 8vo, 10s. 6d. *nett.*

C. W. SUCKLING, M.D. LOND., M.R.C.P.

Professor of Materia Medica and Therapeutics at the Queen's College, Physician to the Queen's Hospital, Birmingham, etc.

ON THE DIAGNOSIS OF DISEASES OF THE BRAIN, SPINAL CORD, AND NERVES. With Illustrations, crown 8vo, 8s. 6d.

JOHN BLAND SUTTON, F.R.C.S.

Lecturer on Comparative Anatomy, Senior Demonstrator of Anatomy, and Assistant Surgeon to the Middlesex Hospital; Erasmus Wilson Lecturer, Royal College of Surgeons, England.

LIGAMENTS: THEIR NATURE AND MORPHOLOGY. With numerous Illustrations, post 8vo, 4s. 6d.

HENRY R. SWANZY, A.M., M.B., F.R.C.S.I.

Examiner in Ophthalmic Surgery in the Royal University of Ireland, and to the Conjoint Board of the King and Queen's College of Physicians and Royal College of Surgeons, Ireland; Surgeon to the National Eye and Ear Infirmary, Dublin, etc.

A HANDBOOK OF THE DISEASES OF THE EYE AND THEIR TREATMENT. Third Edition, Illustrated with wood-engravings, colour tests, etc., small 8vo. [*In preparation.*

EUGENE S. TALBOT, M.D., D.D.S.

Professor of Dental Surgery in the Woman's Medical College; Lecturer on Dental Pathology and Surgery in Rush Medical College, Chicago.

IRREGULARITIES OF THE TEETH AND THEIR TREATMENT. With 152 Illustrations, royal 8vo, 10s. 6d.

H. COUPLAND TAYLOR, M.D.

Fellow of the Royal Meteorological Society.

WANDERINGS IN SEARCH OF HEALTH, OR MEDICAL AND METEOROLOGICAL NOTES ON VARIOUS FOREIGN HEALTH RESORTS. Crown 8vo, with illustrations, 6s. [*Now ready.*

JOHN DAVIES THOMAS, M.D. LOND., F.R.C.S. ENG.

Physician to the Adelaide Hospital, S. Australia.

I.

HYDATID DISEASE, WITH SPECIAL REFERENCE TO ITS PREVALENCE IN AUSTRALIA. Demy 8vo, 10s. 6d.

II.

HYDATID DISEASE OF THE LUNGS. Demy 8vo, 2s.

HUGH OWEN THOMAS, M.R.C.S.

I.

DISEASES OF THE HIP, KNEE, AND ANKLE JOINTS, with their Deformities, treated by a new and efficient method. Third Edition, 8vo, 25s.

II.

CONTRIBUTIONS TO SURGERY AND MEDICINE:—

PART 1.—Intestinal Obstruction; with an Appendix on the Action of Remedies. 10s.

,, 2.—The Principles of the Treatment of Joint Disease, Inflammation, Anchylosis, Reduction of Joint Deformity, Bone Setting. 5s.

,, 3.—Fractures, Dislocations, Diseases and Deformities of the Bones of the Trunk and Upper Extremities. 10s.

,, 4.—The Collegian of 1666 and the Collegians of 1885; or what is recognised treatment? Second Edition, 1s.

,, 5.—On Fractures of the Lower Jaw. 1s.

,, 6.—The Principles of the Treatment of Fractures and Dislocations. 10s.

,, 8.—The Inhibition of Nerves by Drugs. Proof that Inhibitory Nerve-Fibres do not exist. 1s.

(Parts 7, 9 and 10 are in preparation).

J. ASHBURTON THOMPSON, M.R.C.S.

Late Surgeon at King's Cross to the Great Northern Railway Company.

FREE PHOSPHORUS IN MEDICINE WITH SPECIAL REFERENCE TO ITS USE IN NEURALGIA. A contribution to Materia Medica and Therapeutics. An account of the History, Pharmaceutical Preparations, Dose, Internal Administration, and Therapeutic uses of Phosphorus; with a Complete Bibliography of this subject, referring to nearly 200 works upon it. Demy 8vo, 7s. 6d.

J. C. THOROWGOOD, M.D.

Assistant Physician to the City of London Hospital for Diseases of the Chest.

THE CLIMATIC TREATMENT OF CONSUMPTION AND CHRONIC LUNG DISEASES. Third Edition, post 8vo, 3s 6d

FREDERICK TREVES, F.R.C.S.

Hunterian Professor at the Royal College of Surgeons of England; Surgeon to and Lecturer on Anatomy at the London Hospital.

THE ANATOMY OF THE INTESTINAL CANAL AND PERITONEUM IN MAN. Hunterian Lectures, 1885. 4to, 2s. 6d.

D. HACK TUKE, M.D., LL.D.

Fellow of the Royal College of Physicians, London.

THE INSANE IN THE UNITED STATES AND CANADA. Demy 8vo, 7s. 6d.

DR. R. ULTZMANN.

ON STERILITY AND IMPOTENCE IN MAN. Translated from the German with notes and additions by ARTHUR COOPER, L.R.C.P., M.R.C.S., Surgeon to the Westminster General Dispensary. With Illustrations, fcap. 8vo, *2s. 6d.*

W. H. VAN BUREN, M.D., LL.D.

Professor of Surgery in the Bellevue Hospital Medical College.

DISEASES OF THE RECTUM: And the Surgery of the Lower Bowel. Second Edition, with Illustrations, 8vo, 14s.

RUDOLPH VIRCHOW, M.D.

Professor in the University, and Member of the Academy of Sciences of Berlin, &c., &c.

INFECTION-DISEASES IN THE ARMY, Chiefly Wound Fever, Typhoid, Dysentery, and Diphtheria. Translated from the German by JOHN JAMES, M.B., F.R.C.S. Fcap. 8vo, 1s. 6d.

ALFRED VOGEL, M.D.

Professor of Clinical Medicine in the University of Dorpat, Russia.

A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN. Third Edition, translated and edited by H. RAPHAEL, M.D., from the Eighth German Edition, illustrated by six lithographic plates, part coloured, royal 8vo, 18s.

A. DUNBAR WALKER, M.D., C.M.

THE PARENT'S MEDICAL NOTE BOOK.
Oblong post 8vo, cloth, 1s. 6d.

JOHN RICHARD WARDELL, M.D. EDIN., F.R.C.P. LOND.

Late Consulting Physician to the General Hospital Tunbridge Wells.

CONTRIBUTIONS TO PATHOLOGY AND THE PRACTICE OF MEDICINE. Medium 8vo, 21s.

W. SPENCER WATSON, F.R.C.S. ENG., B.M. LOND.

Surgeon to the Great Northern Hospital; Surgeon to the Royal South London Ophthalmic Hospital.

I.

DISEASES OF THE NOSE AND ITS ACCESSORY CAVITIES. Second edition, profusely Illustrated, demy 8vo.
[*In the press.*

II.

EYEBALL-TENSION: Its Effects on the Sight and its Treatment. With woodcuts, p. 8vo, 2s. 6d.

III.

ON ABSCESS AND TUMOURS OF THE ORBIT.
Post 8vo, 2s. 6d.

FRANCIS H. WELCH, F.R.C.S.

Surgeon Major, A.M.D.

ENTERIC FEVER: as Illustrated by Army Data at Home and Abroad, its Prevalence and Modifications, Ætiology, Pathology and Treatment. 8vo, 5s. 6d.

W. WYNN WESTCOTT, M.B.

Deputy Coroner for Central Middlesex.

SUICIDE; its History, Literature, Jurisprudence, and Prevention. Crown 8vo, 6s.

E. G. WHITTLE, M.D. LOND., F.R.C.S. ENG.
Senior Surgeon to the Royal Alexandra Hospital for Sick Children, Brighton

CONGESTIVE NEURASTHENIA, OR INSOMNIA AND NERVE DEPRESSION. Crown 8vo, 3s. 6d.

JOHN WILLIAMS, M.D., F.R.C.P.
Professor of Midwifery in University College, London; Obstetric Physician to University College Hospital; Physician Accoucheur to H.R.H. Princess Beatrice, etc.

CANCER OF THE UTERUS: Being the Harveian Lectures for 1886. Illustrated with Lithographic Plates, royal 8vo, 10s. 6d.

E. F. WILLOUGHBY, M.D. LOND.

THE NATURAL HISTORY OF SPECIFIC DISEASES, OR STUDIES IN ŒTIOLOGY, IMMUNITY, AND PROPHYLAXIS. 8vo, 2s. 6d.

E. T. WILSON, B.M. OXON., F.R.C.P. LOND.
Physician to the Cheltenham General Hospital and Dispensary.

DISINFECTANTS AND HOW TO USE THEM. In Packets of one doz. price 1s.

DR. F. WINCKEL.
Formerly Professor and Director of the Gynæcological Clinic at the University of Rostock.

THE PATHOLOGY AND TREATMENT OF CHILDBED: A Treatise for Physicians and Students. Translated from the Second German edition, with many additional notes by the Author, by J. R. CHADWICK, M.D. 8vo, 14s.

BERTRAM C. A. WINDLE, M.A., M.D. DUBL.
Professor of Anatomy in the Queen's College, Birmingham; Examiner in Anatomy in the Universities of Cambridge and Durham.

A HANDBOOK OF SURFACE ANATOMY AND LANDMARKS. Post 8vo, illustrations, 3s. 6d.

EDWARD WOAKES, M.D. LOND.

Senior Aural Surgeon and Lecturer on Aural Surgery at the London Hospital; Surgeon to the London Throat Hospital.

I.

ON DEAFNESS, GIDDINESS AND NOISES IN THE HEAD.

VOL. I.—POST-NASAL CATARRH, AND DISEASES OF THE NOSE CAUSING DEAFNESS. With Illustrations, cr. 8vo, 6s. 6d.

VOL. II.—ON DEAFNESS, GIDDINESS AND NOISES IN THE HEAD. Third Edition, with Illustrations, cr. 8vo. [*In preparation.*

II.

NASAL POLYPUS: WITH NEURALGIA, HAY-FEVER, AND ASTHMA, IN RELATION TO ETHMOIDITIS. With Illustrations, cr. 8vo, 4s. 6d.

DAVID YOUNG, M.C., M.B., M.D.

Licentiate of the Royal College of Physicians, Edinburgh; Licentiate of the Royal College of Surgeons, Edinburgh, etc.

ROME IN WINTER AND THE TUSCAN HILLS IN SUMMER. A CONTRIBUTION TO THE CLIMATE OF ITALY. Small 8vo, 6s.

HERMANN VON ZEISSL, M.D.

Late Professor at the Imperial Royal University of Vienna,

OUTLINES OF THE PATHOLOGY AND TREAT-MENT OF SYPHILIS AND ALLIED VENEREAL DISEASES. Second Edition, revised by M. VON ZEISSL, M.D., Privat-Docent for Diseases of the Skin and Syphilis at the Imperial Royal University of Vienna. Translated, with Notes, by H. RAPHAEL, M.D., Attending Physician for Diseases of Genito-Urinary Organs and Syphilis, Bellevue Hospital, Out-Patient Department. Large 8vo, 18s.

Clinical Charts For Temperature Observations, etc.
Arranged by W. RIGDEN, M.R.C.S. 50s. per 1000, 28s. per 500, 15s. per 250, 7s. per 100, or 1s. per dozen.

Each Chart is arranged for four weeks, and is ruled at the back for making notes of Cases; they are convenient in size, and are suitable both for hospital and private practice.

THE NEW SYDENHAM SOCIETY'S PUBLICATIONS.

President :—W. T. Gairdner, M.D., LL.D.
Honorary Secretary :—Jonathan Hutchinson, Esq., F.R.S.
Treasurer :—W. Sedgwick Saunders, M.D., F.S.A.

Annual Subscription, One Guinea.

The Society issues translations of recent standard works by continental authors on subjects of general interest to the profession.

Amongst works recently issued are "Cohnheim's Pathology," "Henoch's Children," "Spiegelberg's Midwifery," "Hirsch's Historical and Geographical Pathology," "Essays on Micro-Parasites," works by Charcot, Duchenne, Begbie, Billroth, Graves, Koch, Hebra, Guttmann, etc.

The Society also has in hand an Atlas of Pathology with Coloured Plates, and a valuable and exhaustive "Lexicon of Medicine and the Allied Sciences."

The Annual Report, with full list of works published, and all further information will be sent on application.

PERIODICAL WORKS PUBLISHED BY H. K. LEWIS.

THE BRITISH JOURNAL OF DERMATOLOGY. Edited by Malcolm Morris and H. G. Brooke. Published monthly, 1s. Annual Subscription 12s. post free.

THE NEW YORK MEDICAL JOURNAL. A Weekly Review of Medicine. Annual Subscription, One Guinea, post free.

THE THERAPEUTIC GAZETTE. A Monthly Journal, devoted to the Science of Pharmacology, and to the introduction of New Therapeutic Agents. Edited by Drs. H. C. Wood and R. M. Smith. Annual Subscription, 10s., post free.

THE GLASGOW MEDICAL JOURNAL. Published Monthly. Annual Subscription 20s., post free. Single numbers, 2s. each.

LIVERPOOL MEDICO-CHIRURGICAL JOURNAL, including the Proceedings of the Liverpool Medical Institution. Published twice yearly, 3s. 6d. each number.

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. Volumes I. to VI., 8vo, 10s. 6d. each.

MIDDLESEX HOSPITAL, REPORTS OF THE MEDICAL, SURGICAL, AND Pathological Registrars for 1883 to 1888. Demy 8vo, 2s. 6d. *nett* each volume.

*** Mr. Lewis is in constant communication with the leading publishing firms in America, and has transactions with them for the sale of his publications in that country. Advantageous arrangements are made in the interests of Authors for the publishing of their works in the United States.

Mr. Lewis's publications can be procured of all Booksellers in any part of the world.

London: Printed by H. K. Lewis, 136 Gower Street, W.C.